



TENNESSEE
TECHNOLOGICAL
UNIVERSITY

UNDERGRADUATE
CATALOG
2019 – 2020

TABLE OF CONTENTS

INFORMATION DIRECTORY.....	1	New Student and Family Programs Office	54
NOTICE.....	2	Student Health Service	54
University Calendar.....	5	Medical Insurance.....	55
General Information	6	Student Activities	55
Establishment and History.....	6	Alumni Association.....	56
Statement of Mission	6	Career Development.....	57
The University Campus.....	7	Motor Vehicles	57
Academic Organization and Programs of Study	12	Drug Free Campus Policy.....	57
Admissions.....	17	Student Complaint Procedures	57
Admission to Freshman Standing:.....	17	Student Responsibility	58
Admission as a Transfer Student	23	Judiciary Procedures	58
Readmission of Former Students	24	Residential Life	59
Admission as a Transient Student.....	24	Financial Aid	61
Academic Fresh Start	25	Scholarships	67
Fees	33	Intercollegiate Athletics	67
Academic Regulations and Registration	34	International Education	68
The School Year	34	TTU Women’s Center	68
Definition of a Credit Hour	34	UNDERGRADUATE PROGRAMS	69
Classification (Year Level).....	34	College of Arts and Sciences	69
Official Notice	35	College of Business	69
Undergraduate Degree Requirements.....	35	College of Education	69
Honors	43	College of Engineering	69
Honors Program	44	College of Interdisciplinary Studies	69
Grades and Quality Points.....	44	College of Agriculture and Human Ecology.....	71
Academic Standards	46	School of Agriculture	71
Major.....	47	School of Human Ecology.....	73
Registration.....	48	College of Business	87
Changes in Registration	48	College of Education.....	93
Student Course Load.....	50	College of Engineering	96
Repetition of Courses	50	College of Fine Arts	107
Minimum Class	51	College of Interdisciplinary Studies.....	109
Attendance and Withdrawal.....	51	Whitson-Hester School of Nursing.....	112
Veterans Benefits	51	Volpe Library.....	114
Transcript of Academic Records	52	Learning Support Program.....	114
Privacy Rights of Students	52	Independent Programs	115
Use of Social Security Numbers.....	52	U.S. Army Reserve Officers' Training Corps.....	115
Student Affairs and Activities	52	Military Science	115
Dean of Students Office	53	AFROTC Program/Scholarships	117
Counseling Center	53	CURRICULA.....	119
Disability Services	53	COURSE DESCRIPTIONS	279
Eagle Card Office.....	53	GOVERNANCE	486
Minority Affairs.....	53	ADMINISTRATIVE OFFICERS & STAFF.....	487
		UNIVERSITY COMMITTEES	509
		CAMPUS MAP	510

INFORMATION DIRECTORY

All inquiries and correspondence concerning the following areas should be addressed to:

Admissions

Office of Admissions
Tennessee Technological University
Campus Box 5006
Cookeville, TN 38505-0001
(931) 372-3888

admissions@tntech.edu

Records, Registration, & Graduation

Office of Records, Registration, & Graduation
Tennessee Technological University
Campus Box 5026
Cookeville, TN 38505-0001
(931) 372-3317 or 1-800-268-0242
Fax (931) 372-6111
registrar@tntech.edu

Academic Offices

Provost and Vice-President for Academic Affairs
College of Agriculture & Human Ecology
College of Arts & Sciences
 Student Success Center
College of Business
 Student Success Center
College of Education
 Advising Center
College of Engineering
 Student Success Center
College of Fine Arts
College of Interdisciplinary Studies
 Advising Center
School of Whitson-Hester Nursing
Extended Programs and Regional Development
College of Graduate Studies
International Education

Financial Aid

Office of Financial Aid
Tennessee Technological University
Campus Box 5076
Cookeville, TN 38505-0001
(931) 372-3073 or 1-800-268-0236
Fax (931) 372-6309
financialaid@tntech.edu

Residential Life

Office of Residential Life
Tennessee Technological University
Campus Box 5016
Cookeville, TN 38505-0001
(931) 372-3414 or 1-800-268-0240
Fax (931) 372-3772
reslife@tntech.edu

(931) 372-3224
(931) 372-3149
(931) 372-3118
(931) 372-3610
(931) 372-3372
(931) 372-3371
(931) 372-3124
(931) 372-6336
(931) 372-3172
(931) 372-3553
(931) 372-3016
(931) 372-3366
(931) 372-6238
(931) 372-3203
(931) 372-3394
(931) 372-3233
(931) 372-3634

Directory assistance for other offices is available through the main switchboard at (931) 372-3101. The University's web site address is: www.tntech.edu.

Tennessee Technological University is a part of the State University and Community College System of Tennessee. TTU Does not discriminate on the basis of race, sex, sexual orientation, gender identity/expression, disability, age, status as a protected veteran, genetic information, or any other legally protected class. For inquiries regarding non-discrimination policies, contact equity@tntech.edu.

TTU /An EEO/AA/Title IX/Section 504/ADA Employer

NOTICE

The course offerings and requirements of the institution are continually under examination and revision. This catalog (bulletin) presents the offerings and requirements in effect at the time of publication, but is no guarantee that they will not be changed or revoked. However, adequate and reasonable notice will be given to students affected by any changes. This catalog (bulletin) is not intended to state contractual terms and does not constitute a contract between the student and the institution.

The institution reserves the right to make changes as required in course offerings, curricula, academic policies, and other rules and regulations affecting students to be effective whenever determined by the institution. These changes will govern current and formerly enrolled students. Enrollment of all students is subject to these conditions. Current information may be obtained from the following sources:

Information:	Department:
Admission Requirements	Admissions Office
Course Offerings	Department or Division Offering Course
Degree Requirements	Departmental Chairperson of Major
Fees and Tuition	Business Office

The University provides the opportunity for students to increase their knowledge by providing programs of instruction in the various disciplines and programs through faculty who, in the opinion of the University, are qualified for teaching at the college level. The acquisition and retention of knowledge by any student is, however, contingent upon the student's desire and ability to learn and his or her application of appropriate study techniques to any course or program. Thus, the University must necessarily limit representation of student preparedness in any field of study to that competency demonstrated at that specific point in time at which appropriate academic measurements were taken to certify course or program completion. Any or all students may be required to take one or more tests designed to measure general education achievement and/or achievement in selected major areas as a prerequisite to graduation for the purpose of evaluation of academic programs. Unless otherwise provided for any individual program, no minimum score or level of achievement is required for graduation. Participation in testing and other evaluation measures are required for all students and for students in selected programs. In order to comply fully with this provision, the student must authorize the release of his or her scores to the institution. Individual student scores will be treated as confidential. As reported by the Tennessee Higher Education Commission, the graduation rate at Tennessee Technological University is 58.4%. Tennessee Technological University is an Equal Opportunity/Affirmative Action institution and is in compliance with Titles VI and VII of the Civil Rights Act of 1974, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1974, the Rehabilitation Act of 1973, the Vietnam Era Veterans Readjustment Act of 1974, and the Americans With Disabilities Act of 1990. The University is nondiscriminatory on the basis of age, race, color, religion, sex, national origin, disability status, or status as a disabled veteran or veteran of the Vietnam era. Inquiries or complaints concerning these policies should be directed to the Director of Affirmative Action, Derryberry Hall, Room 156, (931) 372-3039.

Faculty members will endeavor to make necessary accommodations for disabled persons in their courses. The Office of Disability Services is available to assist the faculty to make necessary special arrangements for disabled students. This Office should be contacted as early as possible by a student regarding assistance that may be needed for attendance at the University.

ACADEMIC POLICY RELATIVE TO CLOSING DUE TO INCLEMENT WEATHER

GENERAL STATEMENT: Tennessee Technological University offices will remain open during periods of inclement weather, even though classes may be canceled. In accordance with TTU policy 628, faculty, administrators, and staff of TTU are expected to make every reasonable effort to be at their work assignment on time, taking into consideration the personal risk involved. Administrators or staff employees who anticipate arriving late, or not arriving at work at all, should notify their immediate supervisor of this fact as soon as possible and request annual leave for the period of absence. If faculty members must be absent from assigned classes due to inclement weather, it is their responsibility to notify the appropriate chairperson and/or dean. If classes are not canceled despite inclement weather, students are responsible for any academic work they miss as a result of inclement weather. It is the individual student's responsibility to take the initiative in making up any missed work, and it is the faculty member's responsibility to provide students a reasonable opportunity to make up missed work.

MESSAGE FROM THE PRESIDENT

Dear Student,

Congratulations and welcome to Tennessee Tech. You will learn to be bold, fearless, and confident as you make the transformative journey through your college career. Here, you will be able to take your individual set of talents and goals and find out how Tech can best guide you as you create your individual success story.

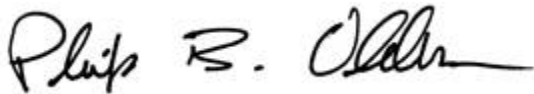
Your journey will be tailored to you, and dedicated faculty, staff and administrators will support you. Plus, students and graduates often say they connected to a genuine student community.

No matter what you choose as a major and a career, our goal is for you to graduate with the ability to use technology to its fullest and to collaborate with people from other disciplines and diverse backgrounds. TTU is graduating students in record numbers as one of the most affordable, accessible institutions in the country producing career-ready graduates. Your success is the focus of our Vision Statement:

Tennessee Tech will be nationally recognized as a leading technological university in the South, providing academic, economic and cultural leadership in the region and producing innovative, ready-to-work graduates from a broad range of academic disciplines prepared to excel in a technologically driven world.

We are ready to help you reach your goals and to have a memorable experience. I am glad you chose to become a Golden Eagle.

Sincerely,



Philip B. Oldham
President



ACCREDITATION AND MEMBERSHIPS

Tennessee Technological University

A State University

Tennessee Technological University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, master's, specialist and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097 or call 404- 679-4500 for questions about the accreditation of Tennessee Technological University.

Accreditation

- Association of Advance Collegiate Schools of Business
- American Association of Family and Consumer Sciences
- ABET
- American Chemical Society
- Accreditation Commission for Education in Nursing (ACEN)
- Accreditation Council for Education in Nutrition and Dietetics
- Council for the Accreditation of Educator Preparation
- Commission on Collegiate Nursing Education
- Council for Accreditation of Counseling and Related Educational Programs
- Engineering Technology Accreditation Commission of ABET
- National Association of Schools of Art and Design
- National Association of Schools of Music
- National League for Nursing Accreditation Commission

Memberships

- American Association of Colleges of Nursing
- American Association of Colleges of Teacher Education
- American Association of State Colleges and Universities
- Council of Graduate Schools
- Higher Education Unit – American Association of Family & Consumer Sciences
- National League for Nursing
- North American Colleges and Teachers of Agriculture
- Ohio Valley Conference
- Oak Ridge Associated Universities
- Cookeville Area – Putnam County Chamber of Commerce
- Southern Association of Colleges and Schools
- Southern Regional Education Board
- Teacher Education Council of State Colleges and Universities
- Tennessee College Association

UNIVERSITY CALENDAR

This calendar is subject to change at any time prior to or during an academic term due to errors, emergencies, or causes beyond the reasonable control of the University. Please see the University Calendar web site at www.tnitech.edu/calendar for registration, fee payment, drop/add, and other important dates.

Summer Semester 2019

May 27	Memorial Day Holiday
June 3	Classes begin for First and Full Term
July 4	Independence Day Holiday
July 5	Final Examinations for First Term
July 8	Classes begin for Second Term
August 8-9	Final Examinations for Second and Full Term

Fall Semester 2019

August 26	Classes begin
September 2	Labor Day Holiday-No classes
October 14-15	Fall Break-No classes
November 27-29	Thanksgiving Holidays-No classes
December 6	Last day of classes
December 9-12	Final Examinations
December 14	Commencement

Spring Semester 2020

January 20	Martin Luther King Holiday-No Classes
January 21	Classes begin
March 16-20	Spring Break
May 1	Last day of classes
May 4-May 7	Final Examinations
May 9	Commencement

Summer Semester 2020

May 25	Memorial Day Holiday
June 1	Classes begin for First and Full Term
July 2	Final Examinations for First Term
July 3	Independence Day Holiday
July 6	Classes begin for Second Term
August 6-7	Final Examinations for Second and Full Term

GENERAL INFORMATION

Establishment and History

Chartered in 1915, Tennessee Tech opened its doors to students in 1916. Its academic programs began with basic humanities and sciences as foundation courses for three major areas of study: Agriculture, Home Economics and Mechanical Arts. The next year, students could enroll in Business as a major course of study as well. By 1918, military training had been added to the curriculum.

In 1938, all the major fields of study, as well as the foundation classes, were reorganized into two main divisions – Arts and Sciences, and Professional and Technical Subjects—housing eleven departments. Divisions were quickly renamed "schools" and, in 1949, the expansion of the curriculum had blossomed into five schools consisting of 24 departments. Most of today's academic programs have their roots in one of those five schools, which were re-designated "colleges" when Tennessee Tech achieved university status in 1965.

Relative newcomers to Tennessee Tech academics include the Department of Military Science (1950), the Graduate School (1958), the School of Nursing (1980), the School of Interdisciplinary Studies and Extended Education (2001), the College of Interdisciplinary Studies (2012) which merged the freshly minted School of Professional Studies and School of Environmental Studies, and the new College of Fine Arts (2017).

Most degree programs at Tennessee Tech today are housed in nine colleges and one school; special programs include three centers of excellence, Honors, the Millard Oakley STEM Center and the Department of Military Science/Army Reserve Officer Training Corps (ROTC).

Statement of Mission

Tennessee Technological University's mission as the state's only technological university is to provide leadership and outstanding programs in engineering, the sciences, and related areas that benefit the people of Tennessee and the nation. The University also provides strong programs in the arts and sciences, business, education, agriculture and human ecology, nursing, music, art and interdisciplinary studies. Tennessee Tech serves students from throughout the state, nation, and many other countries, but it retains a special commitment to enrich the lives of people and communities in the Upper Cumberland region of Tennessee.

The University is committed to the life-long success of students in its undergraduate, master's, specialist, and doctoral degree granting programs through high-quality instruction and learning experiences. The University is engaged in scholarly activity, especially basic and applied research, creative endeavors, and public service, with special emphasis on community and economic development. The University supports student participation in a broad array of extracurricular activities as an integral component of its commitment to student life and success.

The University's three interdisciplinary Accomplished Centers of excellence in Energy Systems Research, Manufacturing, and Water Resources and Chairs of Excellence in Business Administration strengthen the instructional, research, and service mission of the University.

The University is as supportive of women as of men and as supportive of those in the minority as of those in the majority. The University provides educational opportunities to all eligible persons without regard to age, gender, ethnicity, race, religion, national origin, disability, or sexual orientation. The institution is committed to an inclusive and diverse campus that enriches the educational experience, promotes personal growth and a healthy society, prepares students for success in a global economy, and enhances America's economic competitiveness.

Tennessee Tech Board of Trustees reviewed and affirmed the mission statement on June 15, 2017.

Vision Statement

Tennessee Tech will achieve national prominence and impact through its engaged students, dedicated faculty, and career-ready graduates known for their creativity, tenacity and analytical approach to problem solving.

THE UNIVERSITY CAMPUS

Location. Cookeville, Tennessee, the site of Tennessee Technological University, is located on Interstate 40, Highway 70 North, and Highway 111.

The city of Cookeville has a population of more than 26,000 and is located on the eastern Highland Rim of Tennessee at an elevation of 1,140 feet. The local public schools, civic clubs, and churches have a friendly and cooperative relationship with students, faculty, and staff. The surrounding area, enhanced by three major lakes, abounds in natural beauty and is served by several state parks.

- **Campus.** The campus consists of a tract of 235 acres made attractive by shrubbery, native trees, and a system of driveways and walks; the buildings are arranged to make a compact and convenient university plan.
- **Gerald D. Coorts Memorial Arboretum.** Established on the campus by the Cookeville Tree Board and the College of Agriculture and Human Ecology. This tribute to former Agriculture and Home Economics Dean Gerald Coorts was officially dedicated on March 7, 1997. This lovely "garden" includes more than 150 trees, shrubs, and flowering plants located in areas behind South, Jere Whitson and Kittrell Halls.
- **Residential Life.** The Office of Residential Life realizes the impact that living arrangements can create on a student's life and education. We feel the decision to live in University housing will provide additional opportunities; for personal growth, educational development, connectedness, and leadership experiences. Studies consistently show that students living in the residence halls have higher grade point averages and lower dropout rates and are involved in more campus activities than those living at home or off campus.

TTU campus has 9 residence halls, one for men, one for women and 7 coeducational halls accommodating approximately 2,300 students. Each residence hall is supported by a Hall Director, a live-in professional staff member, and between 9 and 12 Resident Assistants (RAs), upper class students hired to provide support, guidance and community development on each of the floors. Each residence hall is secured by entry through an electronic card access with only assigned residents and staff being allowed entrance.

- **Engineering Residence Halls**—Maddux Hall and McCord Hall, a co-educational residence hall available for students majoring in any discipline within the College of Engineering. Contact the Basic Engineering Program for specific information.
- **Honors Residence Hall**—Murphy Hall, a co-educational residence hall, is available for students majoring in the Honors program. Contact the Honors Department for specific information.
- **The Global Village**—MS Cooper Hall, a co-educational residence hall, is available for International and American residents, wishing to live in international environment. American and International residents are paired together as roommates. Students and students declaring majors in Foreign Languages and International Business and Cultures. Contact the Office of Residential Life International Education for specific information.
- **Men's Residence Hall.** Browning/Evins Hall; The Cave - the Men's Village, houses approximately 250 male residents.
- **Women's Residence Hall.** Crawford Village, a women's residence hall housing approximately 200 residents.
- **Co-Ed Educational Residence Halls.** Tennessee Technological University has eleven co-educational halls housing approximately 1,850 students. Male and female residents are assigned on alternating floors. The names of the halls are:

Cooper/Dunn Hall	Ellington/Warf – Arts & Media Village
Jobe/Murphy Hall	MS Cooper/Pinkerton – Global Village
Maddux/McCord Hall – Engineering Village	New Hall North – Tree House Village
New Hall South – Service Station Village	

- **Living-Learning Villages.** The Village concept was conceived to create smaller, more personal groups within the larger university, to enhance student-faculty interaction beyond the classroom and to enhance positive student connections within the University. Each Village will be organized around a common theme and supported by a Faculty Head working together with the Hall Director, the Residential Life staff and the Village residents.
- **New Hall North "Treehouse" Environmental Village.** A beautiful co-ed facility, newly opened fall 2010 - housing 238 co-ed residents. New Hall North offers both double and single rooms with private baths. Additional amenities include: a great room for residents to gather on each floor, laundry rooms on each of the upper floors, as well as three study rooms centrally located within the hall. Also housed in New Hall North is the Environmental Village, including the Faculty Head office. As a part of the "Treehouse" there are a number of activities and programs

scheduled throughout the academic year supporting environmental issues and additional opportunities for interaction and connection to the campus community.

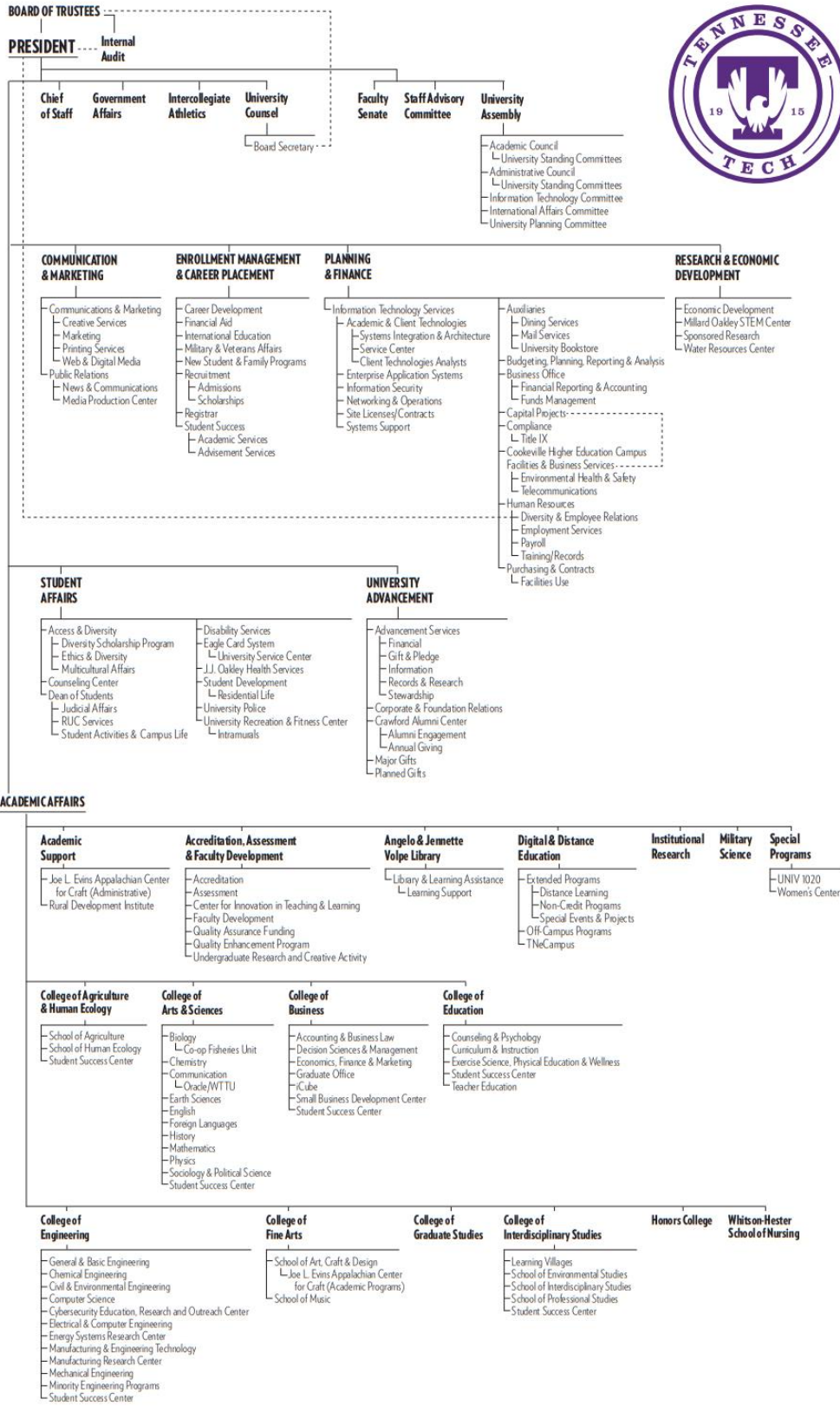
Attached to New Hall North is the sorority wing; housing chapter rooms for five campus sororities, the classroom for the Tree House, "The Perch" (pizza and grill) and convenience store, a recreation area - both located on the first floor, as well as a multipurpose/classroom located on the second floor. New Hall North is available to all students with selected rooms held for new, incoming freshman residents.

- **New Hall South** "The Service Station" Service Village. The companion to New Hall North, housing 358 co-ed residents, offers double rooms with private bathrooms. Additional amenities include: an atrium lounge that includes a large screen television and a ping pong table, four study rooms located throughout the hall as well as a classroom on the fourth floor. Also housed in New Hall South is the Service Village including the Faculty Head office. As a part of "The Service Station" there are a number of activities and programs scheduled throughout the academic year supporting service opportunities and additional chances for interaction and connection to the campus community. New Hall South is available to all students with selected rooms held for new, incoming freshman residents.
- **Maddux/McCord Hall** Engineering Village. Maddux/McCord Hall is a newly renovated traditional hall, housing 263 co-ed residents, that offers additional support for engineering students; tutors hired specially to provide direct academic support for engineering students, a tutoring lab, a computer lab specially equipped with engineering programs, two kitchens as well as study lounges. Also housed in Maddux/McCord is the Faculty Head office and classroom for the Engineering Village. As a part of the Engineering Village there will be a number of activities and programs scheduled throughout the academic year geared towards students talking engineering classes.
- **Crawford Hall** Women's Village. A traditional hall located just across from the Nursing & Health Services Building, housing 219 women residents. In addition to the normal traditional hall amenities, also housed in Crawford Hall is the Faculty Head office, a kitchen, study rooms and a classroom for the Women's Village. As a part of the Women's Village program there will be a number of activities and events scheduled throughout the academic year selected to support women on a college campus.
- **Honors Hall – Murphy Hall**. A newly renovated traditional hall, housing about 119 residents. All Honors Hall residents must be accepted by TTU's Honors Program to in Murphy Hall. Included in the honors hall is a multipurpose room, study rooms, a kitchen as well as a Faculty Office for the Honors Program.
- **Tech Village**. There are 228 newly renovated apartments for all students as well as students married or single with children, graduate students, and faculty/staff. Included in Tech Village is a community Center with pool and ping pong tables, a computer lab, laundry building as well as the Food Pantry
- **Athletic Fields**. Overall Field, home to the Tennessee Tech Golden Eagles Football team, is covered with artificial turf, and has an eight-lane artificial track. Tucker Stadium seats 16,500 spectators. The east stadium section houses facilities for the football team and instructional laboratories. The west stadium section contains classrooms, laboratories, rifle range, and offices for the Army R.O.T.C. program. Other fields include Quillen Field (the intercollegiate baseball field), the Ray Drost Intramural Fields, and lighted tennis courts.
- **Academic and Service Facilities**. The following facilities serve either as academic buildings or as service buildings for the educational programs of the University:
- **Bartoo Hall** houses a Learning Resources Center, Curriculum and Instruction Department, Educational Support Services, and computer labs.
- **Brown Hall** houses the Departments of Electrical and Computer Engineering and Mechanical Engineering.
- **Bruner Hall** houses the Departments of Computer Science, Mathematics, and Physics.
- **Bryan Fine Arts Building** houses the School of Music and Art, Craft and Design and the James A. Wattenbarger Auditorium.
- **Clement Hall** houses the Office of the Dean of the College of Engineering, the Basic Engineering Program, and the D.W. Mattson Computer Center.
- **Mattie Sue Cooper Residence Hall** houses the Office of Residential Life as well as students assigned to the building.
- **Matthews-Daniel Hall** houses the Department of Sociology and Political Science, Tennessee Alcohol Safety Education program, some faculty offices of the Department of Curriculum Instruction, some faculty offices of the Department of Counseling and Psychology and a number of model demonstration programs in education.
- **Derryberry Hall** houses Office of the President, Provost's Office, and several other administrative offices-- Business Office, College of Graduate Studies, International Education Concert. It is also the home of Derryberry Auditorium with a seating capacity of 828 seats.
- **Facilities and Business Services Buildings** house offices, shops, and storage space for operation and maintenance of the University's physical plant.

- **Joe L. Evins Appalachian Center for Craft** located on Center Hill Lake near Smithville houses 87,000 sq. ft. of facilities including the Office of the Director of the Craft Center, classrooms, studios, a library, conference rooms, exhibition and sales galleries, a café, and residential quarters for 64 students.
- **Hooper Eblen Center** houses the offices of the intercollegiate athletics program, the Eagle's Nest (an alumni-sponsored lounge and meeting room), and the center for varsity basketball games, convocations, concerts, and conferences. The seating capacity of this of this facility is 10,200.
- **Hyder-Burks Agricultural Pavilion** is utilized during the week to support instruction in the School of Agriculture and is located at Shipley Farm. Phase I has over 4,000 sq. ft. for animal holding facilities and a sales/demonstration arena. Phase II has a standard show arena and seating for over 2,000. It has office space, classrooms, and laboratory facilities.
- **The W. Clyde and Marie Hyder Farm** contains thirty-one acres and is used as grazing acreage by livestock herds. The farm is operated by the School of Agriculture.
- **Foster Hall** houses the Department of Chemistry.
- **Foundry Building** houses Industrial Technology metal casting.
- **Foundation Hall** houses University Police.
- **Henderson Hall** houses the Office of the Dean of the College of Arts and Sciences, the College of Arts and Sciences Student Success Center (GECU), and the Departments of English and History. It is one of two buildings listed on the National Register of Historic Places.
- **Indoor Tennis Building** houses two tennis courts.
- **Jere Whitson Building** houses the university's enrollment operations, including undergraduate admission, financial aid, scholarships, records and registration, new student and family programs, graduation office, and military and veterans' affairs. The lower level is home to Backdoor Playhouse, a campus theater that hosts student and community productions.
- **Johnson Hall** houses the Office of the Dean of the College of Business, the Departments of Accounting; Decision Sciences and Management; Economics, Finance, and Marketing, the MBA program, two computing and technology resource centers, all multimedia classrooms, and an auditorium with 150 seats.
- **Kittrell Hall** houses the Department of Earth Sciences.
- **Lewis Hall** houses the offices and instructional laboratories for the Department of Manufacturing and Engineering Technology.
- **Angelo and Jennette Volpe Library and Media Center** houses the print and multimedia collections. The Library is a selective U.S. Federal Depository. Access to the Library's holdings is provided by an online catalog accessible through the campus network. The Library provides information sources in a variety of electronic formats. The Library participates in regional and national bibliographic networks which provide extensive resource sharing capability. The collections are now over two million titles.
- **Memorial Gym** houses the Exercise Science, Physical Education and Wellness Department, classrooms, swimming pool, and two basketball gymnasiums, one of which has seating capacity of 3,000 is also located in this building.
- **Military Sciences Building** houses the Army ROTC program and Military Science.
- **Old Maintenance Building** houses the Agricultural Engineering Technology Laboratory and College of Engineering Research Laboratories.
- **Whitson-Hester** houses the offices, classrooms, and clinical simulation laboratories for the School of Nursing.
- **Oakley Hall** houses the School of Agriculture, and the School of Human Ecology, including the School's Historical Textiles Collection and Friday Cafe. In addition, it houses the Department of Foreign Languages.
- **Pennebaker Hall** houses the Biology Department, the USGS Fisheries Cooperative Research Unit, and the Women's Center.
- **Prescott Hall** houses the Departments of Civil and Environmental and Chemical Engineering; the Manufacturing Center; the Water Resources Center; and the Energy Systems Research Center. Also located in the building is an auditorium with a seating capacity of 401.
- **Ray Morris Hall** houses the Millard Oakley STEM Center for the Teaching and Learning of Science, Technology, Engineering and Mathematics. The Oakley STEM Center includes administrative offices and interview rooms, learning studios and prep lab, 240-seat auditorium, virtual theatre, food service, and multipurpose lobby space.
- **Recreation and Fitness Center** is a facility of approximately 80,000 square feet which houses spaces for physical activity and recreation, including a natatorium. The construction and operation costs for this facility are funded entirely by student fees.
- **Roaden University Center Building** houses the central dining rooms including a cafeteria and a grill; Post Office; Bookstore; student and faculty conference rooms; Joan Derryberry Art Gallery; Student Government Association Offices; student publication offices; Department of Communication; Communication and Marketing

Office; Career Development; Counseling Center; WTTU-FM; offices and conference rooms for student personnel services; Office of Student Activities and Campus Life; Office of Student Affairs; Dean of Students Office, Office of Disability Services, and Office of Minority Affairs.

- **The Shipley Farm**, which serves as a farm laboratory, contains three hundred acres and is located two miles from the main campus. It is used for demonstration, instruction, and research, and is operated by the College of Agricultural and Human Ecology Programs.
- **T. J. Farr Building** houses the Office of the Dean, Associate Dean, and the Advisement Center of the College of Education, the Rural Education Research and Services Consortium, the Office of the Ph.D. in Exceptional Learning, and Offices of the Honors Program. It is one of two buildings listed on the National Register of Historic Places.
- **Southwest Hall** houses the College of Interdisciplinary Studies and its schools of Interdisciplinary Studies, Professional Studies and Environmental Studies. The building also is the home of Tech's Child Development Lab.
- **University Services Building** houses the Heating Plant, Printing Shop and Telecommunications.
- **Walton House.** The president's residence is located near Old Walton Road and historic Dixie Avenue. The Old Walton Road is a part of the route traveled between Washington, D.C., and The Hermitage by the Seventh President of the United States, Andrew Jackson.



ACADEMIC ORGANIZATION AND PROGRAMS OF STUDY

College of Agriculture and Human Ecology

School of Agriculture
Undergraduate Degree Programs

Department	Major	Concentrations within Major	Degree
Agriculture	Agriculture	Agribusiness Management Agricultural Communications Agricultural Education Agricultural Engineering Technology Agricultural Science and Management Agritourism Agronomy & Soils Animal & Pre-Veterinary Science Animal Science Pre-Veterinary Science Environmental Agriscience Nursery & Landscape Management Turfgrass Management	Bachelor of Science in Agriculture

School of Human Ecology
Undergraduate Degree Programs

Department	Major	Concentrations within Major	Degree
Human Ecology	Human Ecology	Child Development & Family Relations (Non-Licensure) Child Life Family & Consumer Sciences Education Food Systems Administration Housing & Design Merchandising & Design Nutrition & Dietetics	Bachelor of Science in Human Ecology

College of Arts and Sciences
Undergraduate Degree Programs

Department	Major	Concentrations within Major	Degree
Biology	Biology	Biology Cellular & Molecular Biology Environmental Biology Health Sciences	Bachelor of Science
	Wildlife & Fisheries Science	Conservation Fisheries Science Wildlife Science	Bachelor of Science
Chemistry	Chemistry	Applied Chemistry Business Chemistry Environmental Chemistry Forensic Chemistry Health Science Chemistry Industrial Chemistry Chemistry	Bachelor of Science

Communication	Communication	Biochemistry Pure Chemistry	Bachelor of Science
		Communication Studies Journalism News Editorial Public Relations	
Earth Sciences	Geosciences	Environmental Geology Geographic Information Systems Geography Geology	Bachelor of Science
English	English	Creative Writing Literature Professional & Technical Communication Rhetoric & Language Theatre Performance Technical	Bachelor of Arts
Foreign Language	Foreign Language	French German Spanish	Bachelor of Arts
History	History	History History	Bachelor of Arts Bachelor of Science
Mathematics Physics	Mathematics	Mathematics	Bachelor of Science
	Physics	Traditional Physics Applied Physics	Bachelor of Science
Sociology & Political Science	Political Science	Political Science Legal Studies	Bachelor of Science
	Sociology	Sociology Criminology & Criminal Justice Social Work	Bachelor of Science
Interdisciplinary	International Business & Cultures*	<i>*The International Business and Cultures curriculum is shared by the Colleges of Business and Arts and Sciences. Jointly administered by the department of Economics, Finance, and Marketing (Business) and the Department of Foreign Languages (Arts and Sciences), it leads to a joint B.S. degree, not a separate degree in either college.</i>	

College of Business
Undergraduate Degree Programs

Department	Major	Concentrations within Major	Degree
Accounting	Accounting		Bachelor of Science in Business Administration
Decision Sciences & Management	Business Management	Business & Information Technology Business Intelligence & Analytics General Management Human Resource Management Production & Operations	Bachelor of Science in Business Administration
Economics, Finance & Marketing	Economics Finance Marketing		Bachelor of Science in Business Administration
	International Business & Cultures		Bachelor of Science

College of Education
Undergraduate Degree Programs

Department	Major	Concentrations within Major	Degree
Counseling & Psychology	Psychology		Bachelor of Science
Curriculum & Instruction	Early Childhood Education	Early Childhood/Special Education Early Childhood Education (Non-Licensure)	Bachelor of Science
	Elementary Education		Bachelor of Science
	Multidisciplinary Studies	General (Non-Licensure) Middle School English, 6-8 Middle School Math, 6-8 Middle School Science, 6-8 Middle School Social Studies, 6-8 Teaching English as a Second Language	Bachelor of Science
	Secondary Education	English French German Mathematics Non-Licensure Science Biology Chemistry Earth Science Physics Social Studies Economics Geography History Political Science Spanish Speech Communication & Theatre Special Program: (Not Requiring Degree) Occupational Education	Bachelor of Science in Education
	Special Education	Comprehensive, K-12 Non-Licensure SE Interventionist Biology, 6-12 SE Interventionist English, 6-12 SE Interventionist History, 6-12 SE Interventionist, K-8 SE Interventionist Math, 6-12	Bachelor of Science
Exercise Science, Physical Education & Wellness	Exercise Science, Physical Education & Wellness	Fitness & Wellness Licensure Pre-Athletic Training Pre-Occupational Therapy Pre-Physical Therapy Pre-Physician Assistant Sport Administration	Bachelor of Science

College of Engineering
Undergraduate Degree Programs

Department	Major	Concentrations within Major	Degree
General & Basic Engineering	Basic Engineering		
	General Engineering		Bachelor of Science in Engineering
Chemical Engineering	Chemical Engineering	No Concentration Bio-Molecular Engineering Concentration	Bachelor of Science in Chemical Engineering
Civil & Environmental Engineering	Civil Engineering		Bachelor of Science in Civil Engineering
Computer Science	Computer Science	Data Science High Performance Computing Information Assurance & Cyber-security Software & Scientific Applications	Bachelor of Science
Electrical and Computer Engineering	Computer Engineering		Bachelor of Science in Computer Engineering
	Electrical Engineering	No Concentration Mechatronics Vehicle Engineering	Bachelor of Science in Electrical Engineering
Mechanical Engineering	Mechanical Engineering	No Concentration Mechatronics Vehicle Engineering	Bachelor of Science in Mechanical Engineering
Manufacturing & Engineering Technology	Engineering Technology		Bachelor of Science in Engineering Technology

College of Fine Arts
Undergraduate Degree Requirements

Department	Major	Concentrations within Major	Degree
School of Art, Craft & Design	Fine Arts	Art Education Clay Design, Digital Media Emphasis Fibers Glass Metal Painting Wood	Bachelor of Fine Arts
School of Music	Music	Instrumental/General Music, K-12 Licensure Music Performance Composition Emphasis Instrumental Option Jazz Option Piano Option Vocal Option Vocal/General Music, K-12 Licensure	Bachelor of Music

College of Interdisciplinary Studies
Undergraduate Degree Programs

Department	Major	Concentrations within Major	Degree
Environmental Studies	Environmental & Sustainability Studies	Environmental Science Biology Option Chemistry Option Natural Resources Option Environmental Technology Society, Culture & Communication	Bachelor of Science
Interdisciplinary Studies	Interdisciplinary Studies		Bachelor of Science
Professional Studies	Professional Studies	Health Administration Information Technology International Organizational Leadership Organizational Leadership	Bachelor of Science

School of Nursing
Undergraduate Degree Programs

Department	Major	Concentrations within Major	Degree
Nursing	Nursing		Bachelor of Science in Nursing

PRE-PROFESSIONAL PROGRAMS

Pre-professional programs are designed to satisfy minimum requirements for admission to professional schools. Some students complete only these minimum course requirements prior to seeking admission to the professional school; some students enroll in degree programs such as agriculture, biology, chemistry, engineering, physics, or others, and also take courses to complete the minimum professional school requirements because many of the courses satisfy requirements in both programs. In the case of pre-law, there is no specific degree required; therefore, students interested in law usually pursue a bachelor's degree in a field of their interest such as history, political science, or some area of business.

Program Name

Pre-Dental Hygiene 2 years
 Pre-Dentistry 3 years
 Pre-Health Information Management 3 years
 Pre-Medical Technology 2 years
 Pre-Medicine 3 years
 Pre-Occupational Therapy 2 years

Program Name

Pre-Optometry 3 years
 Pre-Pharmacy 2 years
 Pre-Physical Therapy 3 years
 Pre-Veterinary Medicine 4 years
 Pre-Physician Assistant 3 years
 (Other programs in the allied sciences are available.)

Military Science is available as a minor.

Concentrations in undergraduate programs of study are listed on the transcript.

Options in undergraduate programs of study are not listed on the transcript.

ADMISSIONS

The admission policies and practices of the University are intended to assist students of varied backgrounds including but not limited to race, religion, color, creed, sex, and disabling conditions to gain admission to the University. The University actively seeks students of diversity due to a lack of critical mass of these unrepresented groups and encourages them to apply for admission and to inquire about programs. The admission standards are designed to assure students the best possibility of success at the University.

Prompt attention is given to each application but final action is not possible until all credentials are on file with the University. Students are encouraged to apply early (up to one year before the beginning of the desired term). Gaining admission early contributes to better orientation, course planning, course scheduling and financial aid and scholarship consideration. The application deadline date for receipt of the admission application, test scores (for freshman applicants), appropriate transcripts, and other required materials is August 1 for fall entry, December 1 for spring entry, and May 1 for summer entry. Students who wish to be considered for scholarships must apply for scholarships by December 15 of the year prior to their fall semester enrollment.

Upon admission, a student must complete health requirements prior to registering for courses. The University reserves the right to modify admission policies and procedures as needed to ensure that enrollment does not exceed the facilities available.

Correspondence regarding admission should be addressed to the Office of Admissions, Campus Box 5006, Tennessee Technological University, Cookeville, Tennessee 38505. The website for Admissions is www.tntech.edu/admissions. The e-mail address is admissions@tntech.edu.

Admission to Freshman Standing. An applicant who has not enrolled in college courses following high school graduation or receiving a high school equivalent (HSE) diploma, GED/HiSET may be considered for admission as an undergraduate freshman. To gain admission to the University as a freshman student, one must meet the following requirements:

Graduates of public and non-public (including private schools, home schools, and church-related schools) high schools must provide an official high school transcript showing credits earned and date of graduation. Provisional admissions on academic merit through the sixth or seventh semester can be made; however, a final high school transcript showing graduation date and satisfactory grades must be received by the Office of Admissions before full admission can be granted. The University upholds the requirements and recommendations of the State of Tennessee for Tennessee non-public schools: www.state.tn.us/education/schools/non_public_schools.shtml. Out-of-state, online, and international schools are subject to a case-by-case evaluation to uphold a similar standard. Applicants who cannot provide a satisfactory secondary school credential may substitute acceptable scores on the GED or HiSET examination (see Admission by Examination (GED/HiSET Applicants)).

High School Curriculum Requirements:

Students graduating from high school must complete a distribution of college preparatory courses. The required courses in the Tennessee High School Diploma provide an example of such courses (see TBR Admissions Policy 2:03:00:00 Section II.B.1.a,(4)).

Admission requirements for new freshman applicants must have a 2.5 high school GPA and a 17 ACT Composite score (or a 930 SAT Critical Reading and Math score). Additionally, new freshman applicants must score at least a 15 on each sub score of the ACT (440 SAT ERW and 400 SAT Math).

Students that are over 21 years of age are exempted from the ACT/SAT requirement but must meet the required score on a course placement exam such as the ACCUPLACER.

Students who do not meet the above requirements will be reviewed by the Admissions Review Committee and a more holistic review will be used to evaluate the application for admission. Students volunteering information regarding a handicapping condition will be assessed on an individual basis.

Admission to the College of Engineering also requires a high school GPA of 3.00, an ACT composite score of 20, and an ACT mathematics score of 22. Admission to the mathematics major also requires an ACT mathematics score of 21.

Admission to the Whitson-Hester School of Nursing also requires a high school GPA of 3.00 and an ACT composite score of 20. Admission to certain pre-professional majors also requires a high school GPA of 3.00, a minimum ACT composite score of 21, and a minimum ACT mathematics score of 21. Pre-Professional majors that have different requirements other than general admission requirements include: Pre-Medicine, Pre-Dentistry, Pre-Pharmacy, Pre-Optometry, Pre-Medical Technology, Pre-Physical Therapy, Pre-Physician's Assistant, Pre-Occupational Therapy, Pre-Dental Hygiene and Pre-Health Information Management. Students who do not meet these requirements for entering a specific college or major, but do meet general admission requirements, will be admitted into the General Curriculum or General Health Studies programs accordingly.

Applicants whose native language is not English will be reviewed by the English Placement Committee. Such students may be required to take a placement test or submit test scores for the purpose of validating previous English study and/or placement in English courses, including English composition and English as a Second Language.

Applicants for admission to freshman standing who have been enrolled at another college or university must submit official transcripts from each institution attended (see Admission as a Transfer Student for more information on official transcripts).

Application Procedure for Freshmen

- Complete the online application for Undergraduate Freshman at www.tntech.edu/applyonline by the priority deadlines listed at the top of this section.
- All first-time applicants must provide a one-time, non-refundable fee of \$25. This fee can be paid when submitting the application online or by logging into the application portal using the same username/password the student used to create the application.
- Request an official high school transcript showing coursework, grades, and a graduation date be sent to the Undergraduate Admissions Office. To be considered for admission during the senior year of high school, a transcript showing coursework through grade eleven (six graded semesters) is required. A final transcript must be forwarded upon graduation. If a high school diploma was not earned, a state-issued transcript of GED or HiSET scores is required. If a student has attempted any college credit (through dual-enrollment, summer courses, etc.) at any institution of higher education, such official college transcripts must be sent to the Undergraduate Admissions Office. Official transcripts must be sent from the institution attended and delivered directly to the University. Transcripts may be delivered via post or electronically through an approved vendor (see the Undergraduate Admissions website for approved vendors). Faxed transcripts or emailed transcripts are **not** considered official transcripts. Mailing Address:
Tennessee Tech Undergraduate Admissions
Campus Box 5006
Cookeville, TN 38505
- Each applicant under 21 years of age is required to take the American College Test (ACT) or the Scholastic Aptitude Test (SAT). Scores should be requested to be sent to Tennessee Technological University when you register for the test. The school code for TTU (ACT 4012/SAT 1804). Test scores used for admission must be no more than three years old at the first day of class. Once approved, applicants over the age of 21 must take a course placement exam such as the ACCUPLACER which is offered on Tennessee Tech's campus.
- Additional items may be required per the Office of Admissions in order to ensure a complete review of an applicant.
- In compliance with the requirements of the Office of Residential Life, an application and prepayment for on-campus housing should be submitted to the Office of Residential Life. (See Residential Life.)
- Each applicant should complete and return the Student Health Form, the Hepatitis/Meningitis Wavier Form, and supply requisite immunization documentation before registering for courses. Forms are available to download from the Health Services website at www.tntech.edu/healthservices. (See "Health Requirements" section for more information.)
- Notification will be sent via email, followed by an official letter via mail. The admission decision can also be viewed by logging back into the application portal.

It is a Class A misdemeanor to misrepresent academic credentials. A person commits the offense of misrepresentation of academic credentials who, knowing that the statement is false and with the intent to secure employment at or admission to an institution of higher education in Tennessee, represents, orally or in writing that the person:

- *Has successfully completed the required course work for and has been awarded one (1) or more degrees or diplomas from an accredited institution of higher education;*

- *Has successfully completed the required course work for and has been awarded one (1) or more degrees for diplomas from a particular institution of higher education; or*
- *Has successfully completed the required course work for and has been awarded one (1) or more degrees or diplomas in a particular field or specialty from an accredited institution of higher education.*

Advanced Placement with Credit. Entering students and regularly enrolled students may obtain advanced placement with credit in certain courses by obtaining high scores on the appropriate test(s):

ACT English Subtest score of 27-30	ENGL 1010
SAT Critical Reading Subtest score of 620-650	ENGL 1010
ACT English Subtest score of 31 or higher	ENGL 1010 and ENGL 1020
SAT Critical Reading Subtest score of 660 or higher	ENGL 1010 and ENGL 1020

The ACT code for Tennessee Tech is 4012. The SAT code is 1804.

**ADVANCED PLACEMENT POLICY FOR TTU
Effective July 1, 2018**

A.P. Examination	Score	Course Exemption	Semester Hours
Biology	3	BIOL 1010 or BIOL 1113	4
	4	BIOL 1010 & BIOL 1020 or BIOL 1113 & BIOL 1123	8
Calculus (AB)	3	MATH 1830	3
	4	MATH 1910	4
Calculus (BC)	3	MATH 1910 & MATH 1920	8
Chemistry	3 ^a	CHEM 1110 or CHEM 1010 & CHEM 1020	4 8
	4	CHEM 1110 & CHEM 1120 or CHEM 1010 & CHEM 1020	8
Computer Science A	3	CSC 1200	3
	4	CSC 1200, CSC 1300	7
Computer Science Principles	3	CSC 1200	3
Economics: Micro	3	ECON 2010	3
Economics: Macro	3	ECON 2020	3
English Language and Composition	3	ENGL 1010	3
	4	ENGL 1010 & ENGL 1020	6
Environmental Science	3	BIOL 3130	4
English Literature and Composition	3	ENGL 2235 & sophomore English	3
European History	3	HIST 2210 & HIST 2220	6
World History	3	HIST 2310 & HIST 2320	6
French Language	3	FREN 1010 & FREN 1020	6
	4	FREN 1010, FREN 1020 & FREN 2010	9
	5	FREN 1010, FREN 1020, FREN 2010 & FREN 2020	12
German Language	3	GERM 1010 & GERM 1020	6

	4	GERM 1010, GERM 1020, & GERM 2010	9
	5	GERM 1010, GERM 1020, GERM 2010 & GERM 2020	12
Government and Politics: United States	3	POLS 1030	3
Human Geography	3	GEOG 1012	3
Spanish Language	3	SPAN 1010 & SPAN 1020	6
	4	SPAN 1010, SPAN 1020, & SPAN 2010	9
	5	SPAN 1010, SPAN 1020, SPAN 2010 & SPAN 2020	12
Statistics	3	MATH 1530	3
Physics 1	3	PHYS 2010	4
Physics 2	3	PHYS 2020	4
Physics C: Mechanics	3	PHYS 2010 or PHYS 2110	4
Physics C: Electricity and Magnetism	3	PHYS 2020 or PHYS 2120	4
Psychology	3	PSY 1030	3
United States History	3	HIST 2010 & HIST 2020	6

^a Students may submit the exam essay portion for departmental evaluation for possible credit in CHEM 1120.

CLEP (College Level Examination Program) - 25 subject matter tests from which to select - credit given in corresponding courses for acceptable scores. Credit is not given for the general examinations. For further information, contact the Admissions Office.

PLTW (Project Lead the Way Credit) – ENGR 1210 (1 credit hour) will be awarded to secondary school students who participate in the "Project Lead the Way" and achieve a minimum grade 70% on the nationalized "Final Exam on Principles of Engineering". The requesting student will need to have his/her test score sent to Tennessee Tech.

Credit by Examinations - A student who has had sufficient training or experience in a subject to merit the establishment of credit by comprehensive examination, but who has not enrolled in the same, comparable, or higher-level course at the college level, may request the privilege of taking a special examination prepared by the department involved. A grade will be recorded on the permanent record.

Non-credit Courses and Professional Certification – Academic credit may be awarded on occasion for professional certification or non-credit courses. Requests for the award of such credit must be submitted to the appropriate department chairpersons. As the executor of departmental policy, he or she will evaluate the requests and submit a recommendation to accept or reject them to the college dean and Office of Records for final approval.

The ACT code for Tennessee Tech is No. 4012. The SAT code is No. 1804.

Credit obtained through test scores on ACT, SAT, CLEP and PLTW receive the grade of "S" for satisfactory and do not affect the student's quality point average. Up to 60 semester hours of credit may be obtained through any combination of advanced placement tests, military equivalency credits, correspondence courses, special departmental examinations, and extension courses. For more detailed information, contact the Office of Admissions or your high school counselor.

International Baccalaureate. The University recognizes the International Baccalaureate diploma and individual IB courses by awarding credit on IB higher level examinations. Some standard level examinations may also be considered for credit.

Standard-Level IB Courses

International Baccalaureate Course	Minimum Required Score	TTU Equivalent	Credit Hours Earned
Visual Arts A (SL)	4	Art Studio Elective	3
	5	ART 1035	3
	6 or 7	ART 1035, studio elective	3, 3

**TENNESSEE TECHNOLOGICAL UNIVERSITY
2019-2020 UNDERGRADUATE CATALOG**

Visual Arts B (SL)	5 - 7	ART 1035	3
Chemistry (SL)	5 - 7	CHEM 1010, CHEM 1020	8
Economics (SL)	6 or 7	ECON 2010, ECON 2020	6
French A1 (SL)	6	FREN 1010, FREN 1020	6
	7	FREN 2010, FREN 2020	6
German A1 (SL)	6	GERM 1010, GERM 1020	6
	7	GERM 2010, GERM 2020	6
Language A1 (SL)	6	ENGL 1010	3
	7	ENGL 1010, ENGL 1020	6
Further Mathematics	No credit awarded		
Mathematical Studies (SL)	No credit awarded		
Mathematics (SL)	5	MATH 1710	3
Mathematics (SL)	6	MATH 1710, MATH 1830	3, 3
Music A (SL)	5	No credit	
	6 or 7	MUS 1030	3
Philosophy (SL)	No credit awarded		
Physics (SL)	No credit awarded		
Psychology (SL)	5 - 7	PSY 1030	3
Spanish A1 (SL)	6	SPAN 1010, SPAN 1020	6
	7	SPAN 2010, SPAN 2020	6
Sports, Exercise and Health Science (SL)	5	EXPW 1150	3
Theatre Arts (SL)	5 - 7	THEA 1030	3

Higher-Level IB Courses

International Baccalaureate Course	Minimum Required Score	TTU Equivalent	Credit Hours Earned
Visual Arts (HL)	5	Studio Elective	3
	6 or 7	Up to six credit hours studio elective with portfolio review	
Biology (HL)	5 - 7	BIOL 1010, BIOL 1020 or BIOL 1113, BIOL 1123	8
Chemistry (HL)	5 - 7	CHEM 1110, CHEM 1120	8
Economics (HL)	5 - 7	ECON 2010, ECON 2020	6
French A1 (HL)	5	FREN 1010, FREN 1020	6
	6 or 7	FREN 2010, FREN 2020	6
German A1 (HL)	5	GERM 1010, GERM 1020	6
	6 or 7	GERM 2010, GERM 2020	6
History (HL)	5 - 7	Lower-division history elective	3
Language A1 (HL)	5	ENGL 1010	3
	6 or 7	ENGL 1010, ENGL 1020	6

Mathematics (HL)	5 - 7	MATH 1730, MATH 1910	5, 4
Philosophy (HL)	5 - 7	PHIL 1030	3
Physics (HL)	5 - 7	PHYS 2010, PHYS 2020	8
Psychology (HL)	5 - 7	PSY 1030	3
Spanish A1 (HL)	5	SPAN 1010, SPAN 1020	6
	6 or 7	SPAN 2010, SPAN 2020	6
Sports, Exercise and Health Science (HL)	5	EXPW 1150	3
Theatre Arts (HL)	5 - 7	THEA 1030	3

Admission by Examination (GED/HiSET Applicants). Applicants who have not graduated from high school but whose corresponding high school class has graduated must submit an official transcript of the General Educational Development (GED) or HiSET Test. A minimum of a 162 GED (525+ 2002-2013 or 52+ pre-2002) or 13 HiSET score is required for admission. An ACT score is also required of (1) all applicants who are under 21 years of age or (2) all applicants regardless of age, who are seeking majors in engineering, nursing, pre-professional programs, or math. All GED/HiSET students must also take the ACCUPLACER exam unless ACT/SAT scores are less than three years old. For specific requirements regarding ACT scores, see Admission to Freshman Standing. For application procedures, see Application Procedure for Freshmen.

Pre-Freshman Program (Dual/Joint Enrollment). Academically talented students may be admitted into the Pre-Freshman Program by having a planned Individual Education Program (IEP). The following criteria must be met by each applicant:

- Enrollment recommended as a part of the student's planned Individual Education Program (IEP) as determined by the multi-disciplinary team process.
- Certified to be academically talented or gifted according to the criteria for certification of intellectually gifted which are contained in the Tennessee State Department of Education *Student Evaluation Manual*.
- High school grade point average of at least 3.2 on a 4.0 scale.
- Must have fully utilized the school's or school system's courses in the desired area of study, or must have satisfactorily completed tests for these courses with a score of 75 or better.

A student who does not have an IEP may be admitted to the Pre-Freshman Program by meeting all of the following criteria:

1. A recommendation from the high school guidance counselor.
2. A minimum high school grade point average 3.5 on a 4.0 scale or an ACT composite score of 25.

Admission in the Pre-Freshman program will allow enrollment in one course per semester if seats are available. Approval from the academic department to enroll in the desired course is also required. Exceptions to take more than one course may be made. Please seek permission from the Admissions Office. College credit will be given for courses that are satisfactorily completed. This admission is not available for enrollment in activity or private instruction courses. A semester grade of "B" or better is expected; however, a semester review of the student's success will be performed by the University to determine whether continued enrollment is allowed. It is expected that such students return to their high school for completion of the senior year and graduation.

Early Admission. The high-achieving student who has completed the junior year with not less than twelve academic (English, science, history, mathematics, foreign languages) units, who has a 3.2 (on a 4.0 scale) grade point average, and an ACT composite score of 26 or higher may be considered for admission without high school graduation. All other admission requirements must be met. A letter must be received from the high school principal specifying the college courses that will be substituted for the remaining high school courses. Letters of recommendation from the high school counselor and from a parent must also be received. Early Admission students should follow the admission procedures as freshmen (see Application Procedure for Freshmen). Financial Aid eligibility requires proof of a high school diploma or high school equivalency exam.

Admission as a Transfer Student

An applicant who has begun college elsewhere following high school graduation or the awarding of a high school equivalent diploma (GED or HiSET) is a transfer student. If the student has completed less than twenty-four transferable semester hours of degree credit (college-level courses), the applicant will be evaluated using a combination of the admission requirements for freshmen and transfer applicants:

- Transfer applicants must meet the following academic standards based on all of their previous college-level coursework at all institutions. (1) Must have a minimum cumulative GPA of 2.0; (2) Must have at least a 2.0 in their last full-time semester (or last 12 hours for part-time students).
- Transfer applicants having graduated from a Tennessee Board of Regents community college with an A.A. or A.S. degree in a university-parallel program will usually be eligible for admission.
- An applicant under disciplinary suspension or probation will not be considered for admission until a satisfactory statement has been furnished by the former college and approval given by the Admissions Review Committee.
- Students who do not meet the above requirements will be reviewed by the Admissions Review Committee. Students volunteering information regarding a handicapping condition will be assessed on an individual basis.
- Applicants whose native language is not English will be reviewed by the English Placement Committee. Such students may be required to take a placement test or submit test scores for the purpose of validating previous English study and/or placement in English courses, including English composition and English as a Second Language.

Application Procedures for Transfer Students

1. Complete the online application for Undergraduate Transfers at www.tntech.edu/applyonline by the deadlines listed at the top of this section.
2. All first-time applicants must provide a one-time, non-refundable fee of \$25. If the applicant has previously paid the UG application fee, then the applicant is not required to pay the UG application fee again.
3. Submit official transcripts of all college work completed and a partial transcript if presently enrolled in coursework. Tentative admission may be granted on the basis of partial transcripts if the quality of work at previous institutions clearly meets admission requirements. Submit official final transcripts when all work is completed. Transcripts of all work attempted at the college-level must be submitted. Final admission is granted only after all transcripts and credentials are received. Official transcripts must originate from the institution attended and are delivered directly to the University. Transcripts may be delivered via post or electronically through an approved vendor (see the Undergraduate Admissions website for approved vendors). Faxed or emailed transcripts are **not** considered official transcripts.

Mailing Address:
Tennessee Tech Undergraduate Admissions
Campus Box 5006
Cookeville, TN 38505

It is a Class A misdemeanor to misrepresent academic credentials. A person commits the offense of misrepresentation of academic credentials who, knowing that the statement is false and with the intent to secure employment at or admission to an institution of higher education in Tennessee, represents, orally or in writing that the person:

- *Has successfully completed the required course work for and has been awarded one (1) or more degrees or diplomas from an accredited institution of higher education;*
- *Has successfully completed the required course work for and has been awarded one (1) or more degrees for diplomas from a particular institution of higher education; or*
- *Has successfully completed the required course work for and has been awarded one (1) or more degrees or diplomas in a particular field or specialty from an accredited institution of higher education.*

4. Students who have NOT earned 24 transferrable college-level hours are required to submit an official final high school transcript or GED/HiSET scores. Those who have not completed college-level Math or English courses must follow ACCUPLACER testing guidelines. Students under the age of 21 who have completed fewer than 24 semester hours must also submit official ACT/SAT scores.

5. Additional items may be requested per the Office of Admissions in order to ensure a complete review of an applicant.

6. In compliance with the requirements of the Office of Residential Life, an application and prepayment for on-campus housing should be submitted to the Office of Residential Life. (See Residential Life.)

7. Each applicant should complete and return the Student Health Form, the Hepatitis/Meningitis Waiver Form, and supply requisite immunization documentation before registering for courses. Forms are available to download from the Health Services website at www.tntech.edu/healthservices. (See "Health Requirements" section for more information.)
8. Notification of the admission decision will be sent via mail, email and will be available online. If admitted, information concerning orientation and registration will follow either via mail or email. Admission decision can be viewed by logging back into the application portal.

Readmission of Former Students

A former student of the University must file an application for re-admission. The application may be obtained online at www.tntech.edu/applyonline and should be filed no later than thirty (30) days prior to the first day of class to be considered for the semester in which he or she wishes to enroll. No application fee is required.

A former student who has been suspended two or more times or dismissed must submit a Request for Readmission After Suspension in addition to the application for re-admission no later than 10 days for domestic students and six weeks for international students prior to the beginning of the semester in which he or she wishes to enroll. Admission decisions for suspended or dismissed students are determined by the Admissions Review Committee.

Students should contact the Office of Residential Life concerning on-campus housing requirements (See Residential Life).

Admission as a Special Undergraduate Student. A Special Undergraduate student is not a candidate for a degree; however, this classification allows one to register for **undergraduate** courses, obtain grades, and have these grades recorded on an official University transcript. This classification includes students who have and have not yet received a bachelor's degree. Applicants who are not currently in good standing at the last college attended cannot be admitted as a Special Undergraduate student. Admission as a Special Undergraduate student may be granted a person if it appears that he or she may successfully engage in college work and that enrollment will be beneficial to the person and to the University.

Admission as a Special Undergraduate Student does not guarantee enrollment in any course. After gaining admission, the student is subject to normal procedures for registering for courses. Application for admission to this classification should be filed at least thirty (30) days prior to the beginning of the semester in which enrollment is desired. All fees are the same as for regular students.

All individuals wishing to be admitted in this classification are required to apply for admission (available online at www.tntech.edu/applyonline) and select "Non-Degree Seeking/Special" as a major and indicate "Special" status. The ACCUPLACER assessment is required for students enrolling in English or mathematics courses. Special students are not eligible for federal and state financial aid.

Admission for Second Bachelor Degree or Teacher Certification. A student working towards a second baccalaureate degree or teacher certification is one who has already earned a bachelor's degree and is not working toward a graduate degree, but who takes graduate or undergraduate courses for credit toward a second undergraduate degree or teacher certification. Students must apply for admission (or readmission) to enter this classification and those entering the University for the first time must pay a one-time, non-refundable application fee of \$25. A student who is seeking a second undergraduate degree should file an application for graduation during the first semester of attendance. A student should *not* register for graduate courses without prior permission from the Associate Vice President for Research and Graduate Studies. Credit earned in this classification cannot be counted for graduate degree purposes.

Admission as a Transient Student

A transient student is one who is regularly enrolled in another collegiate institution and desires admission for one semester. The student is required to apply for admission (available online at www.tntech.edu/applyonline) and to provide a letter of good standing from the college in which the student is enrolled. The student should indicate "Transient" status and select "Non-Degree Seeking/Special" as a major. Credit is given and transient admission is for one semester only. A transient student who wishes to become a regular student must file the appropriate admission application and meet the requirements for admission as a transfer student.

Transient students are not eligible for federal and state financial aid.

Admission to Class as an Auditor. An auditor is one who enrolls in classes on a non-credit basis, is expected to attend class, but is not required to hand in assignments or to take examinations. If the instructor is not satisfied with the attendance, the instructor may assign a grade of "W." A student who audits must be admitted to the University as a regular or special student.

Admission to class as an auditor requires the consent of the advisor, consent of the instructor and the approval of the Office of Records and Registration. The applicant should secure the Audit Registration Form from the Office of Records and Registration. Fees for audit courses are the same as those for credit courses.

Audit requests will be processed only until the last day to register, add, or change sections as published in the University Academic Calendar each semester. An audit grade cannot be reversed for a letter grade once the semester begins. Students are not allowed to audit Learning Support Program courses.

Academic Fresh Start

"Academic Fresh Start", in accordance with Tennessee Tech Policy 1205, is a plan of academic forgiveness which allows undergraduate students who have experienced academic difficulty to make a clean start upon returning to college after an extended absence. The Academic Fresh Start allows eligible students to resume study without being penalized for his/her past unsatisfactory scholarship and signals the initiation of a new QPA/GPA to be used for determining academic standing. Readmitted students who were formally enrolled in the institution as well as transfer students who meet institutional requirements for admission and who have been separated from all institutions of higher education for a minimum of four (4) years are eligible for the Fresh Start. After the admission or readmission as a degree-seeking student, a student may file formal application to the Office of Enrollment Management describing an academic plan and requesting the Academic Fresh Start. A student may be granted a Fresh Start only once. After applying for Fresh Start, completion of at least fifteen (15) semester hours of earned degree coursework with a minimum QPA of 2.0 is required for all work attempted in order for Fresh Start to be granted.

Terms of the Academic Fresh Start:

- The student's permanent record will remain a record of all work; however, courses taken and previously failed will be excluded from the calculation of the QPA/GPA. The student's transcript will note that the Fresh Start was made and the date of the Fresh Start.
- Courses with a D grade will also be excluded from the calculation when a grade of C or better is required in the student's current major.
- QPA, GPA and credit hours will reflect courses for which passing grades were earned and retained.
- Retained grades will be calculated in the Fresh Start QPA/GPA.
- Courses with D or F grades must be repeated at the institution when they are required in the student's current major.
- All remaining courses for the current degree objectives must be completed at the institution.
- No transient credit will be accepted after invoking Academic Fresh Start.
- The application of retained credit toward degree requirements will be determined by the requirements currently in effect at the time the academic renewal status is conferred on the student.
- Specific program regulations must also be met.
- Previously satisfied ACCUPLACER requirements will not be forfeited.
- Upon degree admission, Fresh Start applicants who did not satisfy ACCUPLACER requirements at the time of previous enrollment and whose academic plan includes completion of a college-level English or mathematics course must meet current ACCUPLACER requirements regarding enrollment in college English and mathematics courses.
- This policy is independent of financial aid regulations. Financial aid requirements at the time of application will apply. Therefore, a Fresh Start applicant should check with his/her financial aid counselor for guidance.

Health Requirements. There are health requirements with which the student must comply prior to beginning classes. These requirements are not for the purpose of limiting admission, but are to promote a healthy student body.

1. Complete the Immunization Health History form (with official medical documentation and/or medical provider's signature). See <https://www.tntech.edu/healthservices/immunization.php> for a complete listing of immunization requirements.

2. State Law requires each postsecondary institution in Tennessee provide students with information concerning hepatitis B and meningococcal meningitis infections. All students must complete a *Meningococcal Meningitis and Hepatitis B Immunization Health History Form*.
3. All new incoming students living in on campus housing under the age of 22 must submit proof of having a meningitis vaccine on or after their sixteenth birthday before you will be allowed to live in on-campus housing.
4. TTU Policy no. 360 requires that all new incoming students complete the Tuberculosis Screening Form prior to registration.

PLEASE COMPLETE THESE AND RETURN TO THE STUDENT HEALTH SERVICES PRIOR TO BEGINNING CLASSES. Forms are available online at www.tntech.edu/healthservices.
Special programs of study such as nursing may have additional requirements.

Residence Classification. In accordance with TBR Policy 3:05:01:00 and TTU Policy 1201, every person having his or her domicile in this State shall be classified "in-state" for fee and tuition purposes and for admission purposes. Every person not having his or her domicile in this State shall be classified "out-of-state" for said purposes. The domicile of an un-emancipated person is typically that of his or her parent. Students once classified as "in-state" or "out-of-state" will maintain such classification for fee paying purposes during continuous enrollment.

Changes to residence classification are initiated by the student. A request for review must be submitted to the Office of Admissions at least thirty (30) days prior to the beginning of the desired term and adequate information must be provided by the student to warrant a review of resident status. Requests for a first appeal must be made in writing to the Residency Committee within 30 calendar days, absent good cause, of notification from the initial decision of the Residency Classification Officer. Requests for a second appeal must be made in writing to the Vice President for Enrollment Management and Career Placement within 30 calendar days of notification of the first appeal decision. The decision of the Vice President will be final.

If a student classified out-of-state applies for in-state classification and is subsequently so classified, his or her in-state classification shall be effective as of the date on which reclassification was sought. However, out-of-state tuition will be charged for any quarter or semester during which reclassification is sought and obtained unless application for reclassification is made to the admissions officer on or before the last day of registration of that quarter or semester.

Admission of International Students (Undergraduate Study). Tennessee Technological University encourages its faculty, staff, and administrators to foster the enrollment of qualified international students in suitable programs, to work with Government Embassies and Sponsoring Agencies, Overseas Accredited Recruiters (Agents) and Intensive English programs to attract students whose academic potential has already been recognized in their home countries, and to provide appropriate services for international students who enroll at the University. Admissions applications for international students may be obtained from Tennessee Tech's website: (www.tntech.edu/internationaladmissions/).

An international student is classified for educational purposes as a person who is a citizen and permanent resident of a country other than the United States. **Tennessee Tech University is authorized under Federal law to enroll nonimmigrant alien students.**

All international students whose native language is not English must have an official Test of English as a Foreign Language (TOEFL) score or its equivalent (whether another English based test or Certificate from an accredited Intensive English language Program). The admission requirements for international students applying to college for the first time are as follows:

1. Be at least 16 years of age.
2. Graduate from a Secondary School with proof of such with diploma and support documentation showing all years of high school course work.
3. Demonstrate competence in basic courses at the secondary level that are closely related to the intended major program of study at the University.
4. International students who will be applying for a student visa are recommended to complete the application three to six months in advance. Students who reside in the USA may apply up to one month in advance. The following items are required for final admission:
 - a) \$40 non-refundable application fee.
 - b) Test which demonstrates proficient English skills (for students from countries where English is not the primary language). TOEFL test scores should be sent directly from the testing agency. Please use the institution code of 1804 when requesting that scores be submitted directly to TTU. A TOEFL institutional score of 490 or its equivalent on the internet-based TOEFL or computer-based TOEFL will be acceptable

for a provisionally admitted student, and the student must maintain a 2.0 cumulative grade point average by the end of the second semester or the student will be dismissed. Acceptance of institutional TOEFL scores originating from Intensive English Language Programs (copy accepted since only one copy is issued or guaranteed by school administrator). If TOEFL test scores are not available, then alternative tests can be submitted for admission. Students may provide an alternate test such as one of the following below (which can be used in place of the TOEFL requirement).

Please provide one of the following tests for Admission to TTU to replace the TOEFL test:

Test Originator	Minimum Score Required
TOEFL – Test of English as a Foreign Language	490 paper-based 163 computer-based 57 internet-based
IELTS – International English Language Testing System EIKEN	5.0 2 A Grade (College of Junior College Level)
TOEIC -Test of English for International Communication	580
ITEPS (The International Test of English Proficiency)	4.5
Pearson Test of English (PTE)	52 ELS level 109 FLS International Level 7 International English Institute Nashville Level 6 The Language Company Level 8
English Language Program Levels	80
Michigan Test (MELAB)	Level O/A/ AS levels
Cambridge IGCSE or O Level English with an E or better	IB credit of C or better in the IB English course
International Baccalaureate (IB Credit)	C grade or better from an accredited US Canadian/British/New Zealand or Australian based college
Two semesters or three quarters of college-level English composition from an accredited college or university (Non-USA based schools may require the WES or another NACES member).	English score of 17 or higher (19 *can be used to replace the TOEFL requirement)
ACT	Math 19 Reading 19
SAT	Critical Reading score of 420 or higher (460 *can be used to replace the TOEFL requirement) Math 460

**Note: TTU offers conditional letter of admission to applicants who meet the academic and financial requirements but whose English language proficiency does not meet the levels for full admission. Students who receive a Conditional letter of admission must provide one of the English test scores or provide proof of completion of one of the ESL Language Center completion levels. The student upon arrival at TTU to assess their need for additional language instruction must take the Placement Exam in reading, writing and math. If the Placement exam shows the student needs additional English support, then he/she must enroll in additional English language courses, taught through Learning Support, or the ESL 1010 or ESL 1020 classes offered in the Foreign Language Department or future Intensive English-language programs. These courses will likely delay the start of a student's academic program. Students may also be asked to take the Placement Exam in math, reading and writing test again in Learning Support at the end of their Intensive English- language programs.*

International Undergraduate students who complete advanced levels at partnered Intensive English-language Programs will be permitted to enroll at Tennessee Tech University by waiving the English test score requirement. These students must meet all other requirements for admission at TTU. These students must also take the reading, writing, and math Placement Exam prior to registering for classes. The students whose Placement Exam results do not meet the requirements for Learning Support courses or English Composition will be required to enroll in additional English courses as mentioned above.

- Students must also provide an official academic record, which includes all courses and all years completed at the secondary(high school) level, which includes grades earned, final examination scores, diplomas, matriculation

- record or leaving certificate. The admission decision will be based on the student's own educational grading system. All records should be in the original language with the institution's seal, records from nations in which the first language is not English must be accompanied by a certified English translation. Students who have advanced placement credits such as the AP, SAT Subjects exam, GCE levels (A-levels, O-levels, AS-levels), International baccalaureate (IB), Sijil Pelajaran Malaysia (SPM or STPM), CXC, Abitur from Germany, IGCSE, HKALE, Studentsprof/Menntaskoili and Italian Maturita exam scores must provide these documents during their application. As a result, the students will be eligible for credit (there is a limit of 33 credits can be used for a student's program of study).
6. International Undergraduate Students who plan to transfer credits from a university or college program from abroad must be from an accredited university, which can be verified via the World Higher Education Database which is located at: <http://www.whed.net/home.php> which covers 181 countries.
 - a. Students will need to provide course descriptions in English for the Chairs of the various departments to assign transfer credit.
 - b. If an institution is not listed in the World Higher Education Database, the applicant will be required to have all transcripts evaluated by an accredited evaluation firm which can be found at NACES website which is listed at: <http://www.naces.org/members.htm>. The student's home institution is required to submit originals to the selected evaluation firm. Some of the most commonly used evaluation firms include Educational Perspectives (www.edperspectives.com) WES, Josef Silny, Global Credential Evaluators, and Foreign Academic Credential Service.
 - c. Course descriptions in English are required for the departments to properly evaluate a student's overseas coursework.
 - d. Upon arrival to TTU, the student must meet with the departments pertaining to their courses to determine if the individual department chairpersons will assign and transfer credit in regards to equivalency of each class.
 - e. The Office of International Education is not responsible for the acceptance or denial of coursework of the academic departments.
 7. Students who plan to apply for an F-1 visa or J-1 visa must also submit a bank document from their personal bank account or the student's parent or sponsor verifying the student has sufficient funds to sponsor their program of study for one year. We recommend the student contact the immigration specialist in the Office of International Education. The letter from the bank must provide proof of the funds on deposit, indicating the availability of the funds and the period for which the funds have been on deposit. Please contact the Office of International Education to determine the minimum balance for issuance of ones I-20. The estimate of fees includes tuition and registration fees, books and supplies, room cost, meal cost, grooming, insurance, recreation and travel, for three semesters or one academic year. TTU offers financial assistance in the form of part-time work on campus at minimum wage with a limit of 20 hours per week (positions are competitive and not guaranteed). International Undergraduate scholarships are available for new undergraduate students, please contact the Director of International Education for the application and requirements. A student must apply and be accepted to be given consideration for any of the Office of International Education's scholarships. Short-term loans are available in emergency cases. Grants or scholarships available for non-immigrant F-1 or J-1 students are extremely limited. Deadline for scholarships from the departments, need-based and academic, is December 15th, the year before the term. December 15th is the deadline for both the fall and spring terms. The Honors program offers scholarships for students with a GPA of 3.5 and a very high ACT or SAT scores. International Undergraduate scholarship deadline is March to May of the year before. Honor's also provides the Honor's Academic Scholarships which is awarded to students charged out of state tuition.
 8. A housing application for living on campus is available at <http://www.tntech.edu/reslife/applications/>. There is a \$100 deposit, which is not transferable. Students may request a refund if they know they will not be attending TTU 2 months in advance to their start date. International students are not required to live on campus and international's living on campus are recommended to stay in the Global Village of M.S. Cooper and Pinkerton Hall.
 9. Non-immigrant students graduating who are studying in a US High school must submit the following additional documents to complete their application to TTU:
 - A photocopy of the passport showing the expiration date and bio page.
 - A photocopy of their current visa.
 - A photocopy of the current I-20 or DS2019.
 - International Advisor's Reference Form will need to be submitted to TTU from your current program advisor (this form is available from TTU's Immigration Specialist.)

10. Students must also complete and submit student health forms prior to the beginning of classes. Students must provide proof of 2 doses of the Measles, Mumps, and Rubella (MMR) vaccinations/ inoculations and submit a TB skin test with proof of a negative result in writing or x-rays (with proof being TB free) or visit TTU's Health services office to have the required test or inoculations (these tests are not free). The Varicella (Chicken Pox) vaccine is also required for students who cannot show proof of a previous diagnosis as a child or adult. The vaccine requires two inoculations. Students who do not complete the above inoculations/vaccines will not be eligible to register full-time until these exams and inoculations are completed. If students cannot locate their proof of inoculations, they may request a blood test called a titer to determine if the students have the antibodies—thus removing the requirement of proof for MMR, and Chickenpox. The student health forms can be found at the Health Services website at <https://www.tntech.edu/healthservices/forms.php>. Students can either send the inoculations directly to TTU's health services or to the Office of International Education at PO Box 5093 1 William L Jones Dr room 135 Cookeville TN 38505.
11. International Students will be permitted to enter the USA from abroad at least 30 days prior to the beginning of the semester. TTU is permitted to issue the I-20 only 120 days before the start date of the semester they will attend. An F-1 student should not leave home prior to receiving a TTU Certificate of Admission and the I-20 (Certificate of Eligibility). A J-1 student should not leave home prior to receiving a TTU Certificate of Admission and the DS 2019 (Certificate of Eligibility for Exchange Visitor Status). Before applying for one's visa, a student must pay the SEVIS fee of \$200 at <https://www.ice.gov/sevis/i901>. Frequently asked questions on the SEVIS fee can be found at <https://fmjfee.com/i901fee/index.html>. Students who are initially applying for a visa MUST pay the SEVIS fee (I-901). Students presently in the USA do not need to this requirement. These documents, as well as the sponsor's financial letter must be presented to the certifying officer at the American Consulate General's office in order to obtain an F-1 or J-1 visa.

Requirements for International Students on Arrival at TTU

1. **ENGLISH PLACEMENT TEST.** All international students whose native language is not English are required to take the Placement Exam if they have not taken the ACT or SAT exam. This includes English as a Second Language (ESL) and/or English composition. The cost of the English placement test is \$20 for the initial test and \$20 for any retakes thereafter. To take the English Placement test, a student must provide identification. Students that score below the established norm for placement in the Learning Support coursework may not take regular courses which require reading and writing (e.g. psychology, US History and Literature) until their English is at an acceptable level thus the student will be required to enroll in FLS International English courses.
2. **ENGLISH AS A SECOND LANGUAGE (ESL).** Unless specifically exempted by the Placement exam, all international students are required to take READ 1100 Learning Support for Writing I [taken concurrently with ENGL 1010 Writing I] and READ 1010 College Reading Improvement unless they provide an ACT or SAT score which exempts them from taking the exam; these classes must be completed during their first two semesters at TTU. International students will take ESL courses concurrently-FLS International center in the discipline which is recommended based on the Placement Exam concurrently with their major program of study courses. READ 1100 Learning Support Lab for Writing I is to be taken concurrently with ENGL 1010; READ 1010 College Reading Improvement is a pre-requisite to HIST 2010 and HIST 2020.
3. **PLACEMENT TEST.** The Math Placement Exam will be administered to first-semester undergraduate international students who score less than 19 in the math portion of the ACT or less than 430 in the math portion of the SAT prior to enrollment. Some undergraduate international students are required to take the English and reading portions of the Placement Exam after passing the FLS International English course. The purpose of these tests is to validate previous math and English study and/or placement in math and English courses. These tests are required by TTU's governing body. The Math Placement Exam is also used by the Math Department for placement of students into appropriate mathematics classes, including Pre-calculus and Calculus I.
4. **AMERICAN HISTORY.** All undergraduate international students who have not completed one unit in American history at the secondary school level or six hours of American history in previous college work must enroll in American history the first semester in residence and continue in consecutive semesters until they have earned six hours of American history (HIST 2010 and HIST 2020), if the student is exempted from language support such as READ 1010 College Reading Improvement; READ 1100 Learning Support for Writing I; or FLS International Language support in reading and writing.

International students who are required to take FLS International coursework must enroll in American history upon completion of the ESL courses provided by FLS International and READ 1010 College Reading Improvement and continue in consecutive semesters until they have earned six hours in American history (HIST 2010 and HIST 2020). All international students should report to the Office of International Education upon arrival at TTU. The staff will assist the

international student with checking into the residence hall, depositing checks, registration, etc., at the beginning of the semester. International services and programs are administered in this office. All non-immigrant F-1 and J-1 international students will be required to purchase and maintain health insurance. The student's individual or TTU coverage must include medical expenses for accident, illness, evacuation, and repatriation. International students who wish to apply for admission to the Graduate School should address correspondence to the Office of Graduate Studies and should use the Graduate School application at www.tntech.edu/eo/.

Study Abroad. The Study Abroad Office at Tennessee Tech is a comprehensive resource for study, faculty-led programs, service-learning opportunities, intern, and volunteer programs worldwide. Through collaboration and individual attention, we continue to promote confidence, development, understanding, and responsibility in the global community. We offer a full range of advising and support services to students, including program selection, academic planning, financial planning, registration, credit, cultural adjustment, travel planning, and reentry. A variety of program options have been developed to address the diverse needs of students. Programs vary in length, level, academic focus, teaching format, language requirements, cost, and degree of independence demanded of the participant. The Study Abroad Office works with many departments, administrative offices and other units within the University to determine appropriate study abroad options for each major and minor, and to help students earn credit toward their degree through study abroad. With planning, students in any major can study abroad and fulfill degree requirements. Also, TTU offers a fantastic travel reimbursement program to every student who participates in our study abroad programs that meets the very reasonable criteria. In addition, most forms of financial aid and scholarships can be used towards study abroad programs, and TTU has several partner universities abroad that offer scholarship funding.

Information on all study abroad opportunities open to TTU students is available in the Study Abroad Office, Derryberry Hall Room 434, phone 931- 372-3659, email studyabroad@tntech.edu website: www.tntech.edu/studyabroad There is a course sequence to register for these study abroad courses (with a permit). See STUDY ABROAD in the course description section.

Admission to the Graduate School. Applicants for admission to the Graduate School should apply directly to the Associate Vice President of Research and Graduate Studies. A Graduate Catalog is available online at www.tntech.edu/gcatalog

Transfer of Credit. Students may not pick and choose the credit that they wish to transfer. Coursework transferred or accepted for credit toward an undergraduate degree must represent collegiate coursework relevant to the degree, with course content and level of instruction resulting in student competencies at least equivalent to those enrolled in the institution's own undergraduate degree programs. Transfer students whose transcripts show satisfactory completion of the General Education program prescribed by the Tennessee Board of Regents' Policy on Degree Requirements shall be exempted from taking additional courses that normally are a part of the general education requirements of the University, except where teacher certification regulations, major field requirements, or professional accreditation agencies require the inclusion of such courses in the program of studies.

Transfer Credit - Advanced Placement. Advanced placement credit awarded by an institution that has requirements different from those at TTU will be accepted if the student has completed the next successive course in the sequence with at least a grade of "C."

Articulation Agreements with Community Colleges. Tennessee Tech has entered into articulation agreements with the following community colleges: Chattanooga State, Cleveland State, Columbia State, Motlow State, Northeast State, Pellissippi State, Roane State, Volunteer State and Walters State. These transfer programs lead to admission with junior standing at Tennessee Tech after receiving the associate degree by the specified community college. For further information, contact the Director of Academic Services.

Advanced Standing. Students who have attended another collegiate institution may not enter as beginning freshmen. Transcripts of all work attempted at other institutions must be sent by those institutions prior to admission and will be evaluated to determine the student's standing at Tennessee Technological University. Failure to submit any transcript of previous work will be considered as falsification of the record. The acceptance of transfer credit by the University confers advanced standing upon the transfer student.

The student transferring from another institution or requesting advanced standing for educational experiences in the Armed Forces must meet the requirements of this institution for graduation regardless of the number of credits submitted for advanced standing. In instances where there is insufficient information available to evaluate course content and level of instruction for work completed at another institution prior to enrollment, the applicant will be given a tentative evaluation

and the work from such institutions will not be entered on the records until the student's transfer credits have been validated.

Advanced standing will not be granted for credit from an institution which is not a recognized college or university. An alternate plan for transfer students in this category permits the establishment of 14 hours of credit by special examination as provided below. See also, Advanced Placement with Credit.

Community College Credits. A student transferring credit from a two-year institution must complete a minimum of 50 semester hours at a senior institution. Residency and other degree requirements of Tennessee Tech must be met.

Credit in Religious Studies. Tennessee Tech reserve the right to limit transfer credit in religious studies to a maximum of 12 semester hours.

DANTES Examinations - Defense Activity for Non-Traditional Education Support. Students may earn college credit for DANTES examinations administered by the Educational Testing Service and evaluated using ACE Guidelines. Credit through DANTES examinations may not be earned for courses in which previously or currently enrolled, including courses failed in residence, for courses in which credit already has been earned in coursework at a higher level, or for both the DANTES examination and its equivalent course. Students wishing specific information on transferability regarding certain DANTES exams must check with the academic unit pertaining to the subject of the exam. DANTES examination scores must be sent to the Office of Admissions on an official transcript form sent directly from the Educational Testing Service (ETS). See the Transfer Coordinator for further information on DANTES tests.

Educational Experiences in the Armed Forces. In evaluating armed services credit, Tennessee Technological University follows the recommendations of the Guide to the Evaluation of Educational Experience in the Armed Services, published by the American Council on Education, if there is equivalent course content at Tennessee Tech. Servicemembers should be prepared upon entrance to present to the University their discharge or service records (Form DD-214), or a transcript of credits earned while in the armed services, for evaluation. Students who have had 4 or more months of active service in the U.S. armed forces may be given credit not to exceed the 8 hours for the military science course. A student requesting credit for prior ROTC training or active Military Service must obtain certificate from the Department of Military Science. When appropriate, the allowable credit may be given in freshman and sophomore physical education. Tennessee Technological University is a member of Servicemembers Opportunity Colleges and participates in the Concurrent Admissions Program (ConAP).

International Transfer Credit. Any undergraduate student (domestic, or permanent resident) who completed coursework abroad (with the exception of study abroad with TTU) is required to have coursework evaluated by a member of the National Association of Credential Evaluation Services (NACES) www.naces.org. A course by course evaluation is required for any transfer credit to be awarded. The credit will be posted as elective credit and the grades will be posted based on the evaluation report and transcript. To appeal credit for a specific course offered by TTU, the course description must be supplied in English to the Office of Admissions. The department chair of the course's discipline will review to determine if the course is equivalent. A student who does not submit their transcripts to a NACES organization for evaluation will not receive any credit. Transcripts must be submitted to Undergraduate Admissions Office. Not submitting the information could be grounds for dismissal from the University.

Credit Established by Professional Certificate or Non-Credit Courses. Academic credit may be awarded on occasion for professional certification or non-credit courses. Requests for the award of such credit must be submitted to the departmental chairperson of the department in which credit is being sought. As the executor of departmental policy, he or she will evaluate the requests and submit a recommendation to accept or reject them to the college dean and Office of Records for final approval.

Establishment of Credit by Special Examination. A student who has had sufficient training or experience in a subject to merit the establishment of credit by comprehensive examination but who has not enrolled in the same, comparable, or higher-level course at the college level may request the privilege of taking a special examination prepared by the department involved. The request for special examination is secured from the Office of Records and Registration, and the required signatures of approval are obtained, after which the student pays the special examination fee of \$20.00 per semester hour to the Business Office. The results of such an examination will be recorded on the student's permanent record. Not more than 14 semester hours may be established by special examination. To establish credit in this manner, a student must be enrolled in the University. Only grades of A, B, C, D and F will be assigned.

Correspondence, Extension Work and Study at Other Institutions. A student who wishes to enroll for correspondence courses, extension work, or residence study at another institution with the intention of transferring this credit to Tennessee Technological University should have prior written approval from the Dean of the school or college in which the student proposes to graduate. The appropriate request form is obtained from the Office of Records and Registration. Work taken without such approval may be presented for evaluation but will be subject to approval or disapproval. Official transcripts should be furnished immediately upon the completion of such work. Correspondence credit in Freshman English and courses which include laboratory work will not be accepted.

A student in residence at Tennessee Technological University who wishes to take correspondence work from another institution while enrolled at the University will be permitted to do so only if he or she is unable to arrange a schedule for the course on campus. The student needs to file with the Office of Records and Registration a Request for In-Residence Study at Another Institution approved by the advisor and the chairperson of the department in which the work is offered on campus before enrolling for the work. Such courses taken off campus are counted as part of the student's load and are subject to the regulations concerning load.

Not more than 60 semester hours of earned towards a baccalaureate degree by Prior Learning Assessment (PLA), including, but not limited to, Advanced Placement (AP), CLEP, International Baccalaureate (IB), special examination, correspondence, portfolio credit or any combination of these. Credit granted in the formal AP program may be more extensive. Not more than 4 semester hours of correspondence and extension credit in professional education courses may be counted toward graduation or teacher certification.

FEES

Fees, conditions of assessment, and refund policies are subject to change without prior notice by action of the Tennessee Tech Board of Trustees. All registration fees, dormitory rent and meal plan charges are payable in advance unless a deferred payment plan is approved (available for fall and spring semesters only). For more information about the deferred plan, including service charges, late fees, minimum deferrable amounts, etc., <https://www.tntech.edu/bursar/payments/> contact the Business Office Accounts Receivable section. Maintenance fees (in-state tuition) and out-of-state tuition are calculated based upon the number of Student Credit Hours (SCH's) for which a student is enrolled including any courses taken on an audit basis.

Fee rates are based upon student level (graduate or undergraduate) rather than on the course level. For example, a graduate student choosing to enroll in an undergraduate course will be assessed graduate level rates. The full hourly rate will apply to the first 12 hours taken by an undergraduate and to the first 10 hours taken by a graduate student. A discounted hourly rate will apply to enrollment beyond these base hours.

TN eCampus and College of Business Graduate Online Course fees are calculated separately and payable in addition to the main campus fees. Fees for TN eCampus and College of Business Graduate Online Course hours are not subject to a discount for enrollment beyond 12 undergraduate or 10 graduate hours. Full hourly rates are assessed for all TN eCampus and College of Business Graduate Online Course enrollments.

The summer semester is divided into two sessions. Students may register for the full summer or for individual sessions separately; however, full payment for the entire schedule will be required on the earliest applicable deadline. For summer semester, fees are assessed at the full hourly rate and are not subject to discount for enrollment beyond the base hours. Also note the deferred payment plan is not available for summer semester.

In addition to in-state and out-of-state tuition, other fees are applicable. See the Bursar Office website at www.tntech.edu/bursar/ for a comprehensive listing of current fees and the corresponding refund policies.

No student may enroll or receive a diploma, transcript of records, or grade report until all matured debts or obligations to the University, or any phase of its program, have been cleared.

ACADEMIC REGULATIONS AND REGISTRATION

The School Year

The school year consists of two semesters of approximately fifteen weeks each, and a summer term of ten weeks with some courses offered in two five-week sessions. A student may graduate in three years by attending three summer terms in addition to three regular years.

Summer School. The University maintains a summer term with some courses offered in two five-week sessions. Courses are scheduled so a student may complete a semester of course work if enrolled in both summer school sessions. New students and former students not currently enrolled who expect to attend summer school should consult the catalog section entitled "Admission and Expenses."

The summer term is considered equivalent to other semesters at Tennessee Technological University in regard to retention. The student on probation in summer is subject to the regular probation stipulations, including load and requirements for removing probation.

The official last day of the term is the Friday before graduation.

Definition of a Credit Hour

Tennessee Technological University is organized on a semester basis. When the term "hour" or "credit" is used, it refers to a semester hour credit. One semester hour of credit requires one hour (55 minutes) of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks.

Two or more hours of laboratory or studio work are required per hour of credit. An equivalent amount of work is required for practica and other academic activities that award credit. Summer, intersession or other alternate course formats require the equivalent amount of work per credit hour. Laboratory hours per credit are determined by the department or college. Semester credit hours earned in courses such as internships, research, theses, dissertations, study abroad, etc. are based on outcome expectations established by the academic program.

Classification (Year Level)

Course Hours Completed	Classification
0-29.9	Freshman
30-59.9	Sophomore
60-89.9	Junior
90 and greater	Senior

Courses are numbered according to the following pattern:

Course Numbers

1001-1999	Music Courses for Multiple Credit
1000-1999	Freshman Level
2000-2999	Sophomore Level
3000-3999	Junior Level
4000-4999	Senior Level
5000-5999	Graduate Level
6000-6999	Graduate (Restricted to Graduate Students)
7000-7999	Advanced Graduate

In the Catalog listings, courses offered at the senior level that may be taken at the graduate level show the graduate course number in parentheses beside the senior number.

OFFICIAL NOTICE

A notice to report to any administrative office of the University takes precedence over all non-instructional activities, and must be answered immediately or, if received during a class, as soon as the class is over. Failure to respond to such a notice will require satisfactory explanation to the Administrative Council before the student is allowed to continue in residence.

UNDERGRADUATE DEGREE REQUIREMENTS

Each student is personally responsible for completing all requirements established for his or her degree by the University, college, and department. It is the student's responsibility to inform himself or herself of these requirements. A student's advisor may not assume these responsibilities. Any substitution, waiver, or exemption from any established requirement or academic standard may be accomplished only with appropriate approval.

In addition to the requirements listed below, other requirements for a given degree and major may be determined by consulting the portion of the catalog devoted to the particular college or school offering the degree. International students must fulfill all requirements but should consult the special provisions described in Admission of International Students: Undergraduate Study of this catalog.

- 1. General Education Requirements:** 41 semester hours selected from courses in 6 categories (see table below). General education, the foundation of the undergraduate collegiate experience, encompasses the knowledge, skills, attitudes, and values that are obtained from studies in communication, mathematics, social and natural sciences, and humanities. General education is unbounded by academic disciplines and honors the relationships among bodies of knowledge. General education develops the cognitive process of reasoning essential for effective functioning and self-directed learning. General education provides opportunities for the student:
 - to think logically, critically, and creatively;
 - to communicate effectively both orally and in writing;
 - to read extensively and perceptively;
 - to explore moral and aesthetic values, social relationships, and critical thinking through the humanities;
 - to understand the importance of key social institutions, ethics and values, and how individuals influence events and function with others in these institutions throughout the world;
 - to appreciate creative and aesthetic expressions along with their impact on individuals and cultures;
 - to express, define, and logically explore questions about the world through mathematics;
 - to use computer technology to communicate and to solve problems;
 - to use acquired facts, concepts, and principles of the physical and natural sciences in applying the scientific process to natural phenomena;
 - to perceive the importance of wellness and values in human life;
 - to manifest a commitment to lifelong learning.

These outcomes will be acquired in the general education requirements with additional depth obtained in the curriculum of the major and through participation in extracurricular activities.

Common Catalog Statement Regarding General Education. Effective Fall Semester 2004, each institution in the State University and Community College System of Tennessee (The Tennessee Board of Regents System) will share a common lower-division general education core curriculum of forty-one (41) semester hours for baccalaureate degrees. Lower-division means freshman and sophomore courses. The courses comprising the general education curriculum are contained within the following subject categories:

Baccalaureate Degrees*

Communication	9 hours**
Humanities and/or Fine Arts (At least one course must be in literature.)	9 hours
Social/Behavioral Sciences	6 hours
History	6 hours***
Natural Sciences	8 hours
Mathematics	3 hours
Total	41 hours

**Foreign language courses are an additional requirement for Bachelor of Arts (B.A.) degrees. The B.A. degree requires proficiency in a foreign language equivalent to completion of two years of college-level work.*

***Six hours of English Composition and three hours in English oral presentational communication are required.*

****Students who plan to transfer to Tennessee Board of Regents (TBR) universities should take six hours of United States History (three hours of Tennessee History may substitute). Students who plan to transfer to University of Tennessee System universities or to out-of-state or private universities should check requirements and take the appropriate courses.*

Although the courses designated by Tennessee Board of Regents (TBR) institutions to fulfill the requirements of the general education subject categories vary, transfer of the courses is assured through the following means:

- Upon completion of an A.A. or A.S. degree, the requirements of the lower-division general education core will be complete and accepted by a TBR university in the transfer process.
- If an A.A. or A.S. is not obtained, transfer of general education courses will be based upon fulfillment of complete subject categories. (Example: If all eight hours in the category of Natural Sciences are complete, then this "block" of the general education core is complete.) When a subject category is incomplete, course-by-course evaluation will be conducted. The provision of block fulfillment pertains also to students who transfer among TBR universities.
- Institutional/departmental requirements of the grade of "C" will be honored. Even if credit is granted for a course, any specific requirements for the grade of "C" by the receiving institution will be enforced. In certain majors, specific courses must be taken also in general education. It is important that students and advisors be aware of any major requirements that must be fulfilled under lower-division general education.

Courses designated to fulfill general education by Tennessee Tech University are published below. A complete listing of the courses fulfilling general education requirements for all system institutions is available on the TBR website (<https://www.tbr.edu/academics/transfer-and-articulation>) under Transfer and Articulation Information.

TTU Courses Recommended for the TBR General Education Core

Communication (9 hours)	
English composition (6 hours)	
ENGL 1010 - English Composition I	3
ENGL 1020 - English Composition II	3
English oral presentational communication (3 hours)	
COMM 2025 - Fundamentals of Communication	3
PC 2500 - Communicating in the Professions	3
Mathematics (3 hours)	
MATH 1010 - Math for General Studies	3
MATH 1130 - College Algebra	3
MATH 1420 - Geometry Concepts for Teachers	3
MATH 1530 - Introductory Statistics	3
MATH 1630 - Finite Mathematics	3
MATH 1710 - Pre-calculus Algebra	3
MATH 1720 - Pre-calculus Trigonometry	3
MATH 1730 - Pre-calculus Mathematics	5
MATH 1830 - Applied Calculus	3
MATH 1910 - Calculus I	4
History (6 hours)	
HIST 2010 - Early United States History	3
HIST 2020 - Modern United States History	3
Humanities and/or Fine Arts (9 hours)	
At least one literature course, selected from those marked with an asterisk (*), must be included in the 9 hours.	
ART 1035 - Introduction to Art	3

*ENGL 2130 - Topics in American Literature	3
*ENGL 2235 - Topics in British Literature	3
*ENGL 2330 - Topics in World Literature	3
FLST 2520 (3520) The Cultures and Peoples of North Africa	3
FREN 2510 - French Culture and Civilization	3
GERM 2520 - German Culture and Civilization	3
HIST 2210 - Early Western Civilization	3
HIST 2220 - Modern Western Civilization	3
HIST 2310 - Early World History	3
HIST 2320 - Modern World History	3
HIST 1310 - Science and World Cultures	3
MUS 1030 - Music Appreciation	3
PHIL 1030 - Introduction to Philosophy	3
RELS 2010 - Introduction to Religious Studies	3
SPAN 2510 - Spanish Culture and Civilization	3
SPAN 2550 - Latin American Culture and Civilization	3
THEA 1030 - Introduction to Theatre	3
Social/Behavioral Sciences (6 hours)	
AGBE 2010 - World Food and Society	3
ANTH 1100 - Introduction to Anthropology	3
ECON 2010 - Principles of Microeconomics	3
ECON 2020 - Principles of Macroeconomics	3
ESS 1100 - Introduction to Environmental Studies	3
EXPW 2015 - Concepts of Health and Wellness	3
GEOG 1012 - Cultural Geography	3
GEOG 1130 - Geography of Natural Hazards	3
POLS 1030 - American Government	3
PSY 1030 - Introduction to Psychology	3
SOC 1010 - Introduction to Sociology	3
WGS 2010 - Introduction to Women and Gender Studies	3
Natural Sciences (8 hours)	
ASTR 1010 - Introduction to Modern Astronomy	4
ASTR 1020 - Introduction to Modern Astronomy	4
BIOL 1010 - Introduction to Biology	4
BIOL 1020 - Diversity of Life	4
BIOL 1113 - General Biology I	4
BIOL 1123 - General Biology II	4
BIOL 2310 - General Botany	4
BIOL 1080 - Concepts of Biology	4
BIOL 2010 - Human Anatomy and Physiology I	4
BIOL 2020 - Human Anatomy and Physiology II	4
CHEM 1010 - Introductory Chemistry I	4
CHEM 1020 - Introductory Chemistry II	4
CHEM 1110 - General Chemistry I	4
CHEM 1120 - General Chemistry II	4
CHEM 1310 - Concepts of Chemistry	3
GEOG 2100 - Introduction to Meteorology	4

GEOL 1040 - Physical Geology	4
GEOL 1045 - Earth Environment, Resources and Society	4
GEOL 1070 - Concepts of Geology	3
PHYS 1310 - Concepts of Physics	3
PHYS 2010 - Algebra-based Physics I	4
PHYS 2020 - Algebra-based Physics II	4
PHYS 2110 - Calculus-based Physics I	4
PHYS 2120 - Calculus-based Physics II	4

2. **Special course requirements:**

1. English must be taken each semester, except the summer, until this requirement is completed. ENGL 1010-ENGL 1020 may not be dropped. Correspondence credit in ENGL 1010-ENGL 1020 will not be accepted.
2. The prerequisite for ENGL 1020 is a grade of C or better in ENGL 1010, and the prerequisite for a 2000-level English course is a grade of C or better in ENGL 1020. If a transfer student has completed two semesters of composition and has a grade of D in ENGL 1020, then the student must repeat ENGL 1020 before beginning the literature courses. ESL classes do not satisfy the ENGL 1010 and ENGL 1020 communication requirement of the general education core, nor do these courses count toward any degree requirements.
3. All students must complete six hours of American History except those students who are majoring in Chemical, Civil, Computer, Electrical and Mechanical Engineering. If the student has not completed one unit of American History in high school, the student will be required to complete 6 semester hours of American History for the deficiency.
3. Completion of the curriculum for the major subject and degree chosen, as outlined under the department in which the major is offered. A major is outlined under the chosen curricula and must contain at least 6 hours of 3000 or 4000 level in residence at Tennessee Technological University.
4. A minimum of 120 semester hours including 36 hours of 3000 and 4000 level upper-division credit approved courses are required for a baccalaureate degree except for Interdisciplinary Studies majors who are required 45 hours. Not more than 60 semester hours may be earned by correspondence, workshop or extension, or by a combination of these and special examination. Not more than 12 semester hours in music ensembles, Physical Education 1010-1990, and Military Science activity courses may be counted toward graduation. (Not more than 12 semester hours of credit in activity courses may be counted toward the Bachelor's degree requirement.) A student transferring credit from a two-year institution must complete a minimum of 50 semester hours at a four-year institution.
5. All courses required for the major must be passed with at least a "D" on the final attempt if the student does not withdraw from the course.
6. A general quality point average of 2.0 (C) and a general average of 2.0 in the courses offered in the major subject. Transfer students also must attain at Tennessee Technological University a general average of 2.0 and an average of 2.0 in the courses taken in the major subject.
7. **Residence:** To meet the residence requirements, a student must complete at least 25 percent of the credit for the degree requirements including a minimum of 24 semester hours of 3000 and 4000 level course credit at Tennessee Technological University.
8. Students who are majoring in another field but are taking course work in the College of Business must limit credit for the degree in business courses to 30 hours for the 120-hour degree as limited by the Association to Advance Collegiate Schools of Business (AACSB).
9. **Definition of Minors:** A minor is 15 hours. A student may elect to complete more than one minor.
 1. A minor in any specific discipline in the College of Arts and Sciences must include 6 Upper Division hours. A minor in English may not include ENGL 1010 or ENGL 1020. A minor in Mathematics must include MATH 1910 and MATH 1920 and it may not include a course numbered below MATH 1910. A minor for Arts and Sciences students requires the completion of 15 semester hours, including 6 upper-division hours, in a coherent program of study. The criterion of coherence may be met in either of two ways: (1) by following the minor curriculum prescribed by any department or college at TTU, so long as it includes at least 6 upper-division hours; (2) if such a minor curriculum is not available in the chosen department or college, by taking the 15 semester hours, including 6 at the upper division, in a single discipline—i.e., normally, courses with the same course prefix, but students should check with the department offering the minor before assuming this. Exception: A minor in physics will consist of at least

15 hours of coursework including PHYS 2110, PHYS 2120, PHYS 2420, PHYS 2920 and one upper division physics course.

2. A minor in Art, Music or Physical Education may contain no more than 4 hours of individual instruction, ensemble, or activity courses. Other minors are defined as follows:

Agriculture: 15 hours (including 6 upper division hours) approved by the student's academic advisor.

Art: A minor in art is ART 1340 or ART 1350, ART 1035, ART 1045, and Studio Electives—6 credit hours.

Business: A minor in Business shall consist of ACCT 3720, BMGT 3510, MKT 3400, FIN 3210, and LAW 2810. Students must also complete ECON 2010-ECON 2020 for the Social Science component of their General Education requirements or as General Electives.

Business Information Technology and Analytics: A minor in Business Information Technology and Analytics consists of 18 hours from DS 3620, DS 3841, DS 3850, DS 3860 and two classes from: DS 3870, DS 4125, DS 4210, DS 4220, DS 4250, DS 4330 (5330) or ECON 4640 (5640).

Business Management: A minor in Business Management consists of 15 hours BMGT 3510 and four classes from: BMGT 3525, BMGT 3600, BMGT 3630, BMGT 3720, BMGT 4410 (5410), BMGT 4520 (5520), BMGT 4900.

Chemistry: A minor in Chemistry will consist of 18-20 hours including CHEM 3010, CHEM 3020, and CHEM 3410 plus two additional courses chosen from: CHEM 2010, CHEM 3500, CHEM 3510, CHEM 3520, CHEM 4520 (5520), CHEM 4610 (5610), CHEM 4620 (5620), CHEM 4710 (5710). The minimum average GPA in these courses must be 2.0

Coaching: Students must complete 18 hours and must include EXPW 1150, EXPW 3091 or EXPW 3092, EXPW 3180, EXPW 4032, EXPW 4171, EXPW 4540 or EXPW 4550.

Communication: A minor in communication will consist of COMM 2025 or PC 2500. The minor will consist of 4 additional courses offered by the Communication Studies Program, two of the courses must be upper division (3000 and above). JOUR 2100 and JOUR 2200 can be applied to the minor in communication.

Computer Science: Students (except Computer Engineering majors) must complete fifteen (15) semester hours of CSC courses including CSC 1310 and at least six (6) upper division CSC hours. Computer Engineering majors may earn a Computer Science minor by completing the following courses in addition to the computer sciences coursework in the Computer Engineering major: CSC 4570 (5570) (3 hours), CSC 4575 (5575) (3 hours).

Education: Any combination of 15 semester hours chosen from Art Education (ARED), Early Childhood Education (ECED), Educational Psychology (EDPY), Elementary Education (ELED), Foundations of Education (FOED), Music Education (MUED), Reading (READ), Secondary Education (SEED), and Special Education (SPED).

Environmental Studies:¹ A minor will consist of at least 15 hours of coursework, with a minimum of 6 upper-division hours, including the following: (a) HIST 3900 ; (b) One of the following: SOC 3600 or AGBE 4120 (5120); (c) 9 additional semester hours chosen from: AGET 3110, AGRN 1100, AGRN 1110, AGRN 3230, AGRN 4220 (5220), AGRN 4230 (5230); BIOL 3120 or BIOL 3130 or WFS 3130; BIOL 4130 (5130), BIOL 4610 (5610), BIOL 4840 (5840), ESS 3710, CHEM 4710 (5710); ENGL 4931 (5931); GEOG 1010, GEOG 3330, GEOL 4100, GEOL 4150 (5150), GEOL 4410 (5410), GEOL 4650 (5650), GEOL 4711 (5711), SOC 3600, WFS 4500 (5500), including at least one course at the 3000-4000 level and two of the following areas of study: Agriculture, Biology, Chemistry, Geography, Geology, and Sociology (note: WFS is considered to be Biology).

Exercise Science: Students must complete 18 hours and must include EXPW 3032, EXPW 3170, EXPW 3410, EXPW 4032, EXPW 4420, EXPW 4440.

Foreign Language: A minor in French, German, or Spanish will consist of at least 15 credit hours of coursework including FREN, GERM, SPAN 3010 and FREN, GERM, SPAN 3020 and may not include FREN 2510/FREN 3510, GERM 2520/GERM 3520, SPAN 2510/SPAN 3510, or SPAN 2550/SPAN 3550.

Human Ecology: The minor in Human Ecology consists of 15 semester hours of courses offered by the School of Human Ecology as follows: AGHE 2022, HEC 1010, HEC 3011 and HEC Electives (3 hours must be upper division), 8 credits.

Human Resource Management: The minor in Human Resource Management consists of 15 credit hours BMGT 3510, BMGT 3630 and three classes from: BMGT 3525, BMGT 4100, BMGT 4120 (5120), BMGT 4150, BMGT 4610.

Humanities: Any combination of 15 semester hours chosen from Art (ART), English (ENGL), Foreign Languages (FREN, GERM or SPAN), Music (MUS), Philosophy (PHIL), and Theatre (THEA). Note: ENGL 1010 -ENGL 1020 may not be included in the minor.

International Business: Students may earn this minor by completing 15 hours from the following courses: 9 hours from:

- BMGT 3600 – International Management (3)
- ECON 4510 (5510) /FIN 4510 – International Trade and Finance (3)
- FIN 4910 – Multinational Financial Management (3)
- MKT 4100 – International Marketing (3)
- ACCT 4700 (5700) – International Experiences in Accounting (3)
- ECON 4520 (5520) – Comparative Economic Systems (3)

6 hours from:

- Any approved Humanities/Fine Arts course from the TTU General Education Core list except ENGL 2130
- ART 2000 – Art History Survey I (3)
- ART 2020 – Art History Survey II (3)
- COMM 3620 – Intercultural Communication (3)
- GEOG 1012 - Cultural Geography (3)
- MUS 2030 – World Music (3)
- POLS 3670 - Foreign Policy (3)
- POLS 3310 - Politics of Developing Nations (3)
- POLS 3650 - International Organizations (3)
- POLS 4100 - International Law (3)
- SOC 4090 (5090) - Cross Cult Comm/Cult Diversity (3)

OR

- Foreign Language courses (6 hours of the same language): SPAN 1010 /SPAN 1020 , GERM 1010 /GERM 1020 , FREN 1010 /FREN 1020.

OR

- Study Abroad (6 hours)

International Studies: Students may earn this minor by completing 15 hours. Students will use World Studies Elective courses to fulfill the International Studies Minor while on campus. Students may choose 9 credit hours of lower division international topics courses (each is 3 hours):

- SOC 2100 Cultural Ecology
- FREN 1010 Elementary French I
- FREN 1020 Elementary French II
- FREN 2010 Intermediate French I
- FREN 2020 Intermediate French II
- GEOG 1012 Cultural Geography
- GEOG 1035 World Regional Geography 1
- GEOG 1100 Global Climate Change
- GEOG 1130 Geography of Natural Hazards
- GERM 1010 Elementary German I
- GERM 1020 Elementary German II
- GERM 2010 Intermediate German I
- GERM 2020 Intermediate German II
- HIST 1310 Science and World Cultures
- HIST 2310 Early World History
- HIST 2320 Modern World History
- SPAN 1010 Elementary Spanish I
- SPAN 1020 Elementary Spanish II
- SPAN 2010 Intermediate Spanish I
- SPAN 2020 Intermediate Spanish II
- FLST 1011 Elementary Foreign Language Study I
- FLST 1013 Elementary Foreign Language Study II

Students may choose 6 credit hours from the following courses to fulfill the upper division requirement:

- BMGT 3600 International Management
- COMM 3620 Intercultural Communication
- ECON 4510 (5510) International Trade and Finance
- ENGL 4700 Nonwestern Literature
- ENGL 4720 Continental Literature
- FLST 2520 (3520) The Cultures and Peoples of North Africa
- FREN 3510 France: The Country & the People
- GERM 3520 Germany: The Country & the People
- HIST 3550 Ancient Greece and Rome
- HIST 3710 Survey of Spanish History

- HIST 4520-4760 European, Russian, Asian, and African History
- HIST 4790-4799 Latin American Studies
- MKT 4100 International Marketing
- PHIL 3310 History of Ancient and Medieval Philosophy
- PHIL 4020 Comparative Religion
- POLS 4100 International Law
- POLS 3610 International Politics
- POLS 3650 International Organizations
- SOC 4040 (5040) Law and Culture
- SOC 4090 (5090) Cross Cultural Communications and Cultural Diversity
- SOC 4210 (5210) Race, Ethnicity and Multiculturalism
- SPAN 3510 Spain: The Country and the People
- SPAN 3550 Latin America: The Countries and the Peoples, or any upper level foreign language class not used for the foreign language requirement. 6 credit hours of foreign language instruction is required.

Leadership and Military Science: A minor in military science requires the completion of 15 semester hours, including 6 upper-division hours.

Manufacturing and Engineering Technology: Students must complete fifteen (15) semester hours to include nine (9) lower division MET hours and six (6) upper division MET hours.²

Music: A minor in music is MUS 1030, MUS 1120, MUS 3010¹, MUS 3020¹, MUS Applied Study², and MUS Ensemble.

¹ Prerequisite: MUS 1030.

² Two semesters required.

Professional and Technical Communication: A minor in Professional and Technical Communication will consist of: PC 2500 or COMM 2025; and at least 12 additional hours of coursework from the following: PC 3250, PC 3500, PC 3700, PC 3750, PC 4850 (5850), PC 4940 (5940), PC 4970 (5970), PC 4990.

Religious Studies: A minor will consist of HIST 2310, RELS 2010 and at least six credits from: ENGL 3600, HIST 4330-4339, HIST 4520 (5520), HIST 4530 (5530), HIST 4680 (5680), HIST 4730 (5730), PHIL 3010, PHIL 4020, RELS 3300, RELS 4041 -RELS 4043, RELS 4093-4099, RELS 4110, RELS 4300 and three credits from: ASTR 1010, BIOL 1010, ENGL 2330, ENGL 3500, GEOG 1100, HEC 3565, HIST 2220, NURS 3010, NURS 3020, NURS 3030, SOC 4120 (5120), PHIL 2250 or three credits from the previous listing.

Science: Any combination of 15 semester hours chosen from Biology (BIOL), Chemistry (CHEM), Geology (GEOL), and Physics (PHYS).

Social Science: Any combination of 15 semester hours chosen from Criminal Justice (CJ), Economics (ECON), Geography (GEOG), History (HIST), Psychology (PSY), Political Science (POLS), and Sociology(SOC).

Women and Gender Studies: A minor in Women and Gender Studies requires completion of WGS 2010 and a minimum of 12 additional hours of course work (including 6 upper division hours) in approved courses. A minimum of 6 credit hours must be chosen from the following core courses: ENGL 4731 (5731), HIST 4350-4359, HIST 4370 (5370), POLS 3400, SOC 2200. The remaining 6 credit hours may include additional core courses listed above or approved courses that contain a significant focus on women and/or gender, or in which a student may individually contract with course instructor to focus on women and/or gender issues. These courses include but are not limited to the following: ENGL 4920, HIST 4360-4369, HIST 4440-4449, POLS 3200, POLS 3800, POLS 4610, SOC 2630, SOC 4210 (5210), SOC 4610 (5610), HON 4010 and 4900 in various disciplines.

¹Exception: Except for Biology majors, students who did not take BIOL 1010-BIOL 1020 must take BIOL 3120 or BIOL 3130/WFS 3130 as part of the 9 additional hours.

²Exception: A minor in Business for Manufacturing and Engineering Technology consists of ECON 2010, ECON 3610; BMGT 3510, DS 3520, ACCT 3720 and BMGT 3630 or BMGT 4520 (5520) or DS 3620 or DS 3540 or MKT 3400.

10. **Exams for teaching licensure:** All students, irrespective of the College or School in which enrolled who will have completed licensure requirements for teacher education as a part of the total hours required for graduation are required to take the Praxis II (NTE) Examinations: the Core Battery and the appropriate specialty examination(s).
11. **Catalog to follow:** To graduate, a student meets the requirements of the catalog effective at the time he or she entered the curriculum, provided graduation is within seven years from that entrance date, or the catalog in effect at the time of graduation. If a student is out of the university at least one full year, the student must meet with the department chairperson upon re-entering into the program to determine which catalog to follow. "Catalog" refers specifically to degree requirements in this section. Degree requirements for all students, regardless of date of enrollment in their curricula, may be subject to change prior to the publication of a new catalog when the

implementation of curricular changes is necessary to maintain quality programs. The designated catalog for graduation must be approved by the departmental chairperson if different from the one in effect when a student entered the curriculum or the catalog in effect at the time of graduation. Students entering a curriculum in the summer are expected to follow the catalog for the next academic year. A Tennessee public community college student may select the Tennessee Tech Catalog effective at the time he or she enters the community college if that student enrolls at Tennessee Tech within six years and continues in the major chosen while in community college.

12. Credit which was earned earlier than ten years prior to the proposed date of graduation will be subject to review and approval by the academic department of the student's major.
13. **Filing of application for Graduation:** All candidates for an undergraduate degree must file an application for graduation no later than the deadlines provided:
 1. For students planning to graduate in the spring semester, the graduation application must be filed no later than September 1 of the previous year.
 2. For students planning to graduate in the summer semester, the graduation application must be filed no later than December 1 of the previous year.
 3. For students planning to graduate in the fall semester, the graduation application must be filed no later than May 1 of that year.
14. **Completion of requirements policy:** With the exception of grades for courses taken at another institution during the student's final semester before graduation ("transfer grades"), all requirements for graduation, including but limited to substitution forms, grade changes, and requests for exception, must be received by the Academic Services Office (Jere Whitson 315) no later than two (2) days prior to graduation date. In addition, all transcripts related to transfer work must be received by the Academic Services Office no later than two (2) weeks after the graduation date. The receipt of such transcripts more than two (2) weeks after the graduation date will result in the student's graduation occurring at the end of the next semester.
15. Tennessee Tech may make reasonable academic adjustments to degree requirements for qualified students with disabilities, as determined by joint agreement of the Office of Disability Services and the Office of Enrollment Management and Career Placement. Students with a disability requiring academic adjustments and accommodations must contact the Office of Disability Services.

Students may be required to take one or more tests designed to measure general education achievement and achievement in major areas as a prerequisite to graduation, for the purpose of evaluation of academic programs. Students should sign up as indicated. Unless otherwise provided for any individual program no minimum score or level of achievement is required for graduation. Participation in testing may be required of all students in selected programs, and of students selected on a sample basis.

Participation in Commencement. To be eligible to participate in any commencement ceremony you must meet the following requirements:

- Have applied for graduation for that semester by the application deadline
- Be enrolled in **all** courses to complete the degree requirements during the week of final exams

Graduation Instruction for Undergraduate Degree Candidates. For information regarding the disbursement of diplomas, caps and gowns, graduation and rehearsal, special facilities, attendance, absentia status, honors, and photographs please refer to: <https://www.tntech.edu/records/graduation.php>.

Requirements for a Second Undergraduate Degree. A student may qualify for a second baccalaureate degree from Tennessee Technological University by completing all prescribed requirements in the specified curriculum for the second degree and with the approval of the chairperson of the department offering the second degree.

A person who has a baccalaureate degree from another institution* and who, in addition, desires a baccalaureate degree from Tennessee Technological University must fulfill all requirements for a second degree as stated in the previous paragraph and must complete a minimum of 25 percent of the credit for the degree in residence. TTU general education requirements will be considered met, with the following exceptions:

- a. Any general education courses that are required for progression in the major program must be completed.
- b. In addition, if the first baccalaureate degree is from a non-English-speaking university, the student must pass the reading and writing placement exam or complete all additional language support course work needed in the necessary discipline before enrolling at TTU. Depending on the placement exam results, students may be required to complete READ 1100 as a co-requisite for ENGL 1010 as well as READ 1010.

**American degrees must be accredited by an approved agency, and foreign institutions must be approved as "reputable." These approvals will be obtained through consultation with the Director of International Education, the relevant TTU department chairs, and/or appropriate faculty members.*

Identifying Courses Satisfying the Minimum Degree Requirements. Although the courses fulfilling the minimum degree requirements may vary in actual design among institutions, many contain similar content. These courses are identified by common course rubrics (prefixes) and numbers in all TBR institutions to facilitate transferability. The actual courses designated by each institution to fulfill the Minimum Degree Requirements, including courses that may not be a part of the common course prefix and numbering pattern, are denoted in catalogs by the ♦ symbol. A complete matrix of courses that satisfy the Minimum Degree Requirements at all TBR institutions and an explanation of the common course rubric and numbering system are available on the TBR web page (<http://www.tbr.edu/offices/academicaffairs.aspx?id=2930>).

Tennessee Board of Regents/University of Tennessee University Transfer Track Module. Students who wish to fulfill core curriculum requirements for institutions in both the Tennessee Board of Regents (TBR) System and the University of Tennessee (UT) System may do so by completing the TBR-UT University Track Module. The Module consists of a sixty (60) semester hour block of courses in eight categories of subjects. The University Track Module incorporates the minimum degree requirements of all TBR and UT institutions and requires the completion of courses within the following subject categories:

- Category 1: Two English Composition Courses (normally 6 credit hours)
- Category 2: Two Mathematics Courses (normally 6 credit hours)
- Category 3: Two Science Courses (normally 6-8 credit hours)
- Category 4: Five History and Humanities Courses (normally 15 credit hours)*
*Six credit hours of history are required. The type of history required varies among public universities in Tennessee. Check university catalogs to determine the proper history courses to take. Tennessee Technological University requires American History for all majors except engineering majors.
- Category 5: Two Social/Behavioral Science Courses (normally 6 credit hours)
Examples are Anthropology, Criminal Justice, Economics, Political Science, Psychology and Sociology.
- Category 6: Two Multicultural or Interdisciplinary Courses or Two Foreign Language Courses (normally 6 credit hours)
- Category 7: Two Physical Education Courses (normally 2 credit hours)
- Category 8: Pre-major/Major Elective Courses (normally 12-15 credit hours)

The choice of courses depends upon the intended major at the university to which transfer is planned. Students planning to transfer to a Tennessee public university are expected to work with their academic advisors to ensure that all courses taken within the categories are appropriate to their intended majors. Courses to be transferred under the stipulations of the University Track Module must have been completed with the grade of "C" or better.

Honors

Undergraduate Honors. The honor roll for each semester shall be known as the "Dean's List." To receive this honor a student shall be a full-time (12 semester hours Fall and Spring or 8 semester hours Summer), regular undergraduate, having a semester's grade average of 3.1 or higher. Learning Support courses will not be included in the calculation of grades for honors.

Commencement Honors for baccalaureate degrees shall include:

<i>cum laude</i>	3.5 quality point average
<i>magna cum laude</i>	3.7 quality point average
<i>summa cum laude</i>	3.9 quality point average

In determining commencement honors, transfer students shall receive full value for grades and credits providing that the transferring institution is regionally accredited.

Honors Program

Tennessee Technological University provides a full Honors Program to stimulate the academically gifted student to achieve his or her full potential. Admission is limited to students with a 3.5 or better cumulative quality point average, or who do exceptionally well on entrance examinations. Those students who complete Honors Program requirements for graduation have "*in cursu honorum*" inscribed on their diplomas and transcripts and are so designated on the graduation program. For further information, contact the director of the Honors Program, and see "Honors Program".

Honor Societies. Tennessee Technological University recognizes scholarly achievement and encourages student excellence and participation in a large number of academic organizations. Honor societies in specific areas include:

- Alpha Kappa Delta (Sociology)
- Alpha Lambda Delta (Freshmen)
- Alpha Mu Gamma (Foreign Languages)
- Alpha Pi Mu (Industrial Engineering)
- Alpha Psi Omega (Theatre)
- Associated Scholars Guild (Honors Program)
- Beta Alpha Psi (Accounting)
- Beta Beta Beta (Biology)
- Beta Gamma Sigma (Business)
- Chi Epsilon (Civil Engineering)
- Delta Tau Alpha (Agriculture)
- Epsilon Pi Tau (Industrial Technology)
- Eta Kappa Nu (Electrical and Computer Engineering)
- Financial Management Association National Honor Society (Finance)
- Kappa Delta Pi (Education)
- Kappa Mu Epsilon (Mathematics)
- Kappa Omicron Nu (Human Ecology)
- Mortar Board (Interdisciplinary)
- Omicron Delta Epsilon (Economics)
- Omicron Delta Kappa (Interdisciplinary)
- Phi Alpha Theta (History)
- Phi Delta Kappa (Education)
- Phi Kappa Phi (Interdisciplinary)
- Pi Kappa Delta (Public Speaking)
- Pi Kappa Lambda (Music)
- Pi Lambda Theta (Education)
- Pi Sigma Alpha (Political Science)
- Pi Tau Sigma (Mechanical Engineering)
- Psi Chi (Psychology)
- Scabbard and Blade (Army ROTC)
- Sigma Iota Epsilon (Business Management)
- Sigma Pi Sigma (Physics)
- Sigma Tau Delta (English)
- Sigma Theta Tau International (Nursing)
- Society for Collegiate Journalists (Journalism)
- Tau Beta Pi (Engineering)

Grades and Quality Points

On September 1, 1951, the University adopted a 4.0 quality point scale, changing from the 3.0 scale. Grading System. Grades are indicated by letters:

A -- excellent	AU -- audit*
B -- good	X -- absent from examination
C -- satisfactory	W -- withdrew passing*
D -- passing	S -- satisfactory*
F -- failure	U -- unsatisfactory
I -- incomplete*	CU -- co-op unsatisfactory*
IF -- incomplete, calculated as an F	SP -- thesis(satisfactory progress)*
NF -- fail, never attended	NP -- thesis (no progress)*
P -- pass*	EXC -- exchange program*

*Grades with an asterisk are not calculated in the Grade Point Average (GPA).

Pass/Fail Option

1. The Pass/Fail option is available to all **special undergraduate students** including all full-time employees of the University pursuant to Chapter 191 of the Public Acts of 1975 and its guidelines for administration effective July 1, 1985.
2. Course prerequisites may be waived for students electing the Pass/Fail option at the discretion of the instructor.
3. The minimum requirements for a grade of "D" are necessary for a "pass" (P).
4. A course passed under the Pass/Fail system may NOT be credited toward a degree.
5. The instructor acknowledges the grade option for a student by signing the Pass/Fail option form.
6. The Pass/Fail option form will not be accepted later than the last day to add courses as published in the Calendar.

Examinations and Term Grades. Final examinations are held in all subjects at the close of each semester. Early examinations are not permitted.

The term grade is derived from a combination of the class grades, test scores, and examination grades, including the final examination grade, which reflect the student's total performance over the entire semester. The courses (and grades) in which each student has been enrolled appear on the University record of the student. Transcripts of these records are available. Students may view or print a grade report from Eagle Online.

Special arrangements will be made by instructors to allow students with disabling conditions to demonstrate their knowledge and/or competency on final examinations.

Quality points. Quality points are assigned to each semester hour credit as follows:

- For a grade of A, 4 quality points
- For a grade of B, 3 quality points
- For a grade of C, 2 quality points
- For a grade of D, 1 quality point
- For grades of F, IF, X, U, and NF, no quality points.
- For grades of I, W, SP, NP, P, EXC, CU, and AU, are not calculated in the Grade Point Average.
-

Quality Point Average. The quality point average for the semester is determined by dividing the total quality points earned by the total semester hours attempted. The cumulative quality point average is determined by dividing the total quality points for all semesters by the cumulative hours (total hours minus first repeats). Non-credit, remedial, developmental, exchange program, and courses taken for audit and co-op are disregarded in computing the college level quality point average for graduation.

When a course is repeated, only the credits for the last time the course was attempted are counted toward graduation. In computing the cumulative quality point average for graduation, the original grade is voided. Credits attempted with a grade of "W" are disregarded, but credits attempted with grades of U, X, NF and IF (incomplete calculated as F) are counted.

Grade of I (Incomplete). An "I" is assigned when a student's performance has been satisfactory, but for reasons beyond the student's control, he/she has not been able to complete the course requirements within the allotted time as determined by the instructor. **Students are not required to register for the courses again.** The faculty member files a form in the departmental office outlining the requirements necessary to satisfactorily complete the course at the time final grades are filed. A student has one calendar year or until the time of graduation, whichever comes first, to remove the "I"

during which time the "I" is excluded from the calculation of the student's QPA. If the "I" is not removed within the above time limitations, it remains on the student's record permanently and is treated as an "F" in calculating the student's QPA. The "I" grade will appear as an "IF" on the transcript when calculated as an "F" grade.

Midterm Grades. The University recognizes that early warnings are beneficial for students having difficulty in a course. We commend those faculty members who encourage individual or group help sessions and recommend tutorial laboratories. We recommend that faculty members structure and clearly define the grading system so that students may determine by mid-term their level of performance. We further recommend that faculty members, whenever possible, contact students at mid-term who are performing poorly and offer assistance and suggestions for improvement. One component of the University's efforts to improve retention involves the implementation of a policy whereby all students having completed fewer than 30 hours of credit will receive a "Midterm Grade" for the courses in which they are currently enrolled, which can be viewed online by the student's advisor. A general outline of the proposed procedure is shown below.

Instructors will indicate whether the student's progress at Midterm was satisfactory (A, B, or C) or unsatisfactory (D or F). It is assumed that each instructor will be readily able to assess whether or not a student's progress was satisfactory. It is also assumed that faculty advisors will make efforts to use this information to assist the student. Midterm grades or lack thereof may not be used as an issue in a grade appeal.

For more specific instructions or information concerning midterm grading, please contact the Office of the Registrar, located in Jere Whitson Building, Room 221.

Academic Standards

Tennessee Technological University expects all students to strive for the highest academic achievement of which they are capable. Knowing that grades, once obtained, become a permanent record, the University is desirous that grades truly represent student accomplishment. A quality point average (QPA) of 2.00 is required to be eligible for the baccalaureate degree. This means that a 2.00 QPA is required over all college work taken, for all courses taken at Tennessee Tech, and for all courses taken in the major field.

It is the intention of the University to give the student ample opportunity to demonstrate satisfactory work. To achieve this purpose, a graduated retention standard scale has been adopted. A student who desires to raise his or her quality point average is encouraged to repeat courses in which he or she has unsatisfactory grades, to consider a reduced load, and to evaluate the choice of major.

Warning. Students who fail to satisfy the minimum semester QPA standard as given in (column 2, Retention Table) will be placed on academic warning. Students who have been issued an academic warning and who fail to meet the minimum semester QPA standard (column 2, Retention Table) the next semester enrolled will be placed on academic probation. In cases where, concurrently, the semester QPA would indicate academic warning and the cumulative QPA would dictate academic probation, the student will be placed on probation.

Probation. Students who fail to maintain the cumulative or current quality point average required for unconditioned retention are placed on probation. This indicates that the quality of work performed is not satisfactory and the student is in danger of suspension unless his/her achievement shows the required improvement.

A student on probation must not enroll in more than sixteen hours and must remove the probation status the next enrolled semester by exceeding the requirements of the Academic Retention Table. A student on probation that meets the semester average requirement but does not equal the cumulative requirement of the Academic Retention Table will continue on probation.

Suspension. Any student who has been placed on probation and who fails to meet both the required cumulative QPA standard (column 1, Retention Table) and semester QPA standard (column 2, Retention Table) the next semester enrolled will be suspended for a minimum of one semester. The summer term may not be counted as the term of suspension. The only exception to the previous statement is that a student placed on probation and who earns a semester QPA of at least 2.0 (or required minimum semester QPA) the next term enrolled, but who does not raise his/her QPA to the required cumulative QPA standard (column 1), will remain on probation. A student on probation who receives grades of only "S" and/or "W" will incur academic suspension, due to the fact that his/her QPA did not meet the semester QPA standard (column 2, Retention Table). A student suspended for a second time must remain out of school for one calendar year. If a student is suspended a third time, the student will be denied enrollment in the University for a period of two calendar years. The student may wish to enroll at a community college during that time. If a student remains out of school for four years, the student is eligible to apply for "Academic Fresh Start," which allows the student to begin a brand-new academic career.

Retention Table (Effective Fall 2010)

Cumulative Quality Hours Attempted Minus First Repeats	Required Minimum Cumulative Quality Point Average (Column 1)	Required Minimum Semester Quality Point Average (Column 2)
0.0 - 29.09	1.50	1.50
29.10 - 50.09	1.75	1.75
50.10 - and above	2.00	2.00

Readmission After Suspension. A student suspended for the first time will be accepted for readmission after one full fall or spring semester away from all institutions of higher education. The student must apply for readmission at www.tntech.edu/applyonline/. Readmission to the institution is subject to satisfactory performance at previous institutions if the student chooses to enroll at another institution while away from the University. A student applying for readmission after a second or third suspension should follow the procedure listed below AFTER being away from the University for one calendar year for a second suspension and two calendar years for a third suspension. An exception to this required leave may be made for the student who completes an Associate of Arts or Associate of Science degree in a university parallel curriculum at a community college in the interim.

1. Student must submit the "Readmission after Suspension" form at least ten days prior to the beginning of the semester. International students need to apply six weeks before the beginning of the semester.
2. Student must provide any supporting documents or current academic transcripts to accompany the readmission application.
3. Student may personally explain to the Dean (or his/her designee) of his/her college the reasons for seeking readmission.
4. The readmission application and dean's/designee's recommendation will be considered by the University Admissions and Credits Committee.
5. Student will be notified by mail or email from the Office of Admissions about the status of the readmission application and the terms of readmission, if granted.

Appeal. A student may appeal part or all of his/her required leave from the University by completing the "Readmission after Suspension" application process at least ten days (or six weeks for international students) prior to the desired term of enrollment. During the appeal process, most of the suspensions are upheld with exceptions being made only when rare extenuating circumstances exist. The Admissions and Credits Committee will usually require the student to wait one semester before he or she can be readmitted.

Major

Declaring a Major Each student entering Tennessee Tech will select a major subject or field of interest. He or she is expected to complete the curriculum for the major subject and degree chosen, as outlined under the department in which the major is offered, following the requirements in the University catalog effective at the time he or she enters the chosen curriculum. A student who transfers to another institution and later returns to Tennessee Tech will follow the catalog in effect when he/she returns to the University.

As approved through Academic Council November 2018, Tennessee Tech University undergraduate students who have earned 59 or fewer college credits are allowed to have their major recorded as Undeclared/General Curriculum with or without an approved concentration, OR, when the student does not meet the admission requirement within the degree seeking major they will be admitted into either the General Curriculum major with a concentration within Engineering or Math, or the General Health Studies major with a concentration within a pre-professional area. Once a student earns 60 credit hours, they must designate a degree seeking major or student will no longer be eligible for Federal Financial Aid.

Students intending to study nursing, who meet the minimum freshmen academic requirements for Nursing, but not admitted into Tennessee Tech University's Bachelor of Science in Nursing program, will have their major recorded as General Health Studies with the concentration of Lower-Level Nursing (NULO). Students with 60 hours or more will need to select a qualified program of study with a concentration of Lower-Level Nursing. Students intending to study nursing but do not meet the minimum academic freshmen academic requirements will continue to have their major recorded as General Health Studies with the concentration of Pre-Nursing. Students who are not admitted into upper-division nursing but have 60+ hours will need to select an eligible major OR will not be eligible for federal financial aid.

In addition, transfer students admitted into General Curriculum will no longer be eligible for Federal Financial Aid if they have earned 60 hours or more of transfer credit.

Second Major A student may qualify for an additional major or majors by the completion of all prescribed requirements in the specified additional curriculum or curricula.

Changing a Major The major/minor/concentration/program may be changed by completing by meeting with the new department of the major s/he wishes to declare. The change is initiated by the new department in Eagle Online, which both the student and former advisor will acknowledge. From there, the Change of Major is automated through the Office of the Registrar. For more information, contact the Office of the Registrar at Registrar@tntech.edu or at 931.372.3504.

Registration

Registration is available to all formally admitted students and consists of four steps, advisement, enrollment in courses, conformation of enrollment and payment of fees. A student must be registered to attend classes.

Before you can register, you must have met with your advisor, received an advisement sheet, and determined the 5-digit Course Registration Numbers (CRNs) for your classes. Your advisor will tell you your registration time and give you your Alternate PIN. You can log on and register on or after your appointment time only.

Registration appointment times are assigned per classification/earned hours:

Priority	Classification (based on earned hours)
1st (early)	Graduate students and any eligible, qualifying students*
2nd	Seniors and Freshmen
3rd	Juniors
4th	Sophomores

* "Early" or "Priority" registration is reserved **only** for graduate students as well as any student that has a non-flexible time commitment to the University. Students with a non-flexible time commitment to the University are considered qualifying/eligible versus those who also have a time commitment to the University, but who's time commitment is flexible, meaning the needs of the University do **not** come before the student's course schedule. Athletes, student Veterans, students registered with Disability Services, Honors students, and tour guides are considered eligible for early/priority registration as those students must schedule classes around the University's needs. Tutors, work study students, etc. do not qualify as their work schedules and/or commitment with the University are flexible to the student's scheduled courses; the student can fulfill his/her work obligations around his/her courses. To receive "early/priority" registration, qualifying students must have their T numbers submitted to the Registrar's Office by the appropriate office granting early registration during the specified time frame in the semesterly communication the Registrar's office sends out prior to each registration period.

Registration Holds. A student may not have finalized all University requirements which results in a registration hold. This "hold" locks the registration process and the student is required to report to the appropriate office before registering to have the hold removed. A student may view their registration holds, if any, by accessing Student Records, then View Holds under the Registration Menu on Eagle Online.

Late Registration. Registration is not complete until all fees for the semester have been paid. See www.tntech.edu/bursar for fee payment/confirmation instructions. A \$100 nonrefundable fee will be charged during the entire late registration period as announced in the University Online Calendar.

Changes in Registration

Change of Schedule. A student may add a course via Eagle Online until the fourteenth calendar day of the semester (for Fall and Spring terms; the last day to add for the Summer term is the 7th day of classes). To drop a course after the 14th calendar day, an Add/Drop form signed by the student's advisor is required. To add a course, the student's advisor and the instructor of the course must sign the Add/Drop form. All Add/Drop forms must be submitted to the Registration Center in Jere Whitson, Room 221.

Dropping a Course. A student may drop a full-term course, except required English Composition or First Year Connections courses, without receiving a grade during the first 14 calendar days of any term that is longer than seven weeks. For terms shorter than seven weeks, the first seven days will be utilized. A student may drop a course with the grade of "W", beginning the 15th day of the semester through the 11th week for Fall and Spring semesters. The last day to drop with a "W" for Summer semester will be the 47th day (full term) or the 23rd day (1st and 2nd terms). All students must have an advisor's signature on an Add/Drop form. All students dropping any chemistry course with a lab will need to obtain the chemistry chair's signature. (See the online calendar's academic schedule for "Last day to drop with grade of W.") In addition to advisor's signature, athletes must also get their advisor's signature and the signature of the athletic advisor, to drop or add any course after the 14th day of class. International students dropping any course must also get a signature from the Office of International Education.

After the last day to drop with a "W" grade, a student may drop a course(s) only after having established the existence of **extenuating, unavoidable circumstances**.

A complete request must **include** and **meet** the following criteria:

- Demonstrate a direct cause and effect relationship between the extenuating circumstance and the student's ability to successfully comply with University policy;
- Circumstances should only be considered unforeseeable/unavoidable and could not have been reasonably prevented during the time period of issue;
- Must be completed, signed and dated in its entirety;
- Provide a typed, detailed personal statement (please limit to one page); and
- Include relevant supporting documentation of circumstance as stated above that pertains to the time period at issue. Relevant documentation can be furnished only from an appropriate authority to support the claim. Documentation should be signed and on official letterhead of the issuing authority and include the contact information for said authority. Please see examples of acceptable reasons/documentation below.

Requests submitted without valid or sufficient documentation will be automatically denied and closed, but may be reopened once required/sufficient documentation is received by the Office of the Registrar.

Reason/Circumstance	Acceptable, Relevant and Supporting Documentation
Medical Issue	A signed letter from physician/medical provider stating: 1.) the date(s) of the onset and duration of the condition and 2.) how the condition impaired your ability to continue/complete courses. Please do NOT send medical records/bills/receipts or a list of prescriptions.
Military Duty	Deployment Orders/PCS Orders/TDY Orders; Memo from Commanding Officer to address issues not covered by military orders. Generally, we require memos from O-5s and above.
Death of Immediate Family Member	Death certificate or obituary. The submitted documentation must show date of death and family relationship.

****Please note, poor grades and change in major do not constitute extenuating circumstance.*

A student can withdraw from the university (withdraw from "ALL" courses) until the last day of classes and receive "W" grades by contacting the Office of the Registrar, Jere Whitson Building, Room 221 (registrar@tntech.edu).

A student who is officially registered in a course and who fails to attend a class will receive a grade of "NF." A grade of "NF" is treated the same as an "F" when calculating GPA. One who discontinues attendance without official withdrawal will receive a grade of "F" in the course.

A course is not officially removed from a student's schedule until an Add/Drop form is completed and submitted to the Registration Center in Jere Whitson Building, Room 221.

Official Enrollment. Credit will be granted only for courses that appear on the student's official academic record.

Freshman Orientation and Registration. All freshmen and new transfer students will meet for orientation and registration as shown in the University Calendar.

Freshman and Sophomore English. Students must register for the required courses in English for each consecutive semester enrolled, except the summer term, until the requirement of ENGL 1010, ENGL 1020, and ENGL 2130, ENGL 2235 or ENGL 2330 is met. Once enrolled, the student may not drop ENGL 1010 or ENGL 1020.

American History. All undergraduate students, except those majoring in engineering, are required to earn 6 hours of American History (HIST 2010-HIST 2020) at Tennessee Technological University or to present acceptable college transfer credits. All undergraduate students, including engineering students, who have not completed one unit of American History at the high school level, or 6 hours of American History in previous college work, must satisfy this

requirement. International undergraduate students must complete any additional ESL support coursework from FLS international or pass the English Placement Test prior to enrolling in American History. Other undergraduate students will satisfy the requirement as prescribed in the various curricula in the University Catalog.

Student Course Load

Minimum Course Load. The minimum load for full-time attendance is 12 semester hours. In the summer 4 hours is considered the minimum full-time load per session. (See "Financial Aid" section below).

Normal, Maximum, and Probationary Course Loads. Sixteen to seventeen hours is the normal student load. The maximum credit load for a student in good standing is 20 hours for fall and spring semesters and 15 for summer. The maximum load for students on academic probation is 16 hours for fall and spring semesters and 10 for summer. Any load exceeding the above requires approval by the Major Department Chair and Dean of the College or School in which the student is majoring.

Probation Course Load. The maximum load for students on academic probation is 16 semester hours for fall and spring semesters, and 10 for summer, with the exception of seniors within two semesters of graduation, who may carry 18 if necessary. A student on probation may be advised to take a lower load and must observe the load requirement or violate the terms of his/her probation.

Late Registration Course Load. Those who register late may be required to reduce their load.

Financial Aid. Federal law defines full time for financial aid purposes as being registered for at least 12 semester hours (excluding audit hours) for all semesters. Three-quarter time students include those who register for 9-11 semester hours, and half-time students include those who register for 6-8 semester hours. Students who drop below 6 credit hours during any semester (including summer) may have their financial aid deleted. Students who attend only one (1) summer session may have their financial aid reduced.

Please remember that you must attend class to be eligible for your financial aid. If YOU WITHDRAW from school, DROP HOURS, or just STOP going to class, you will probably have to REPAY some or all of the aid you received.

Repetition of Courses

A student may repeat a course which was previously taken and received a final grade of C or lower. Students are permitted to repeat a course in which a grade of B or higher was earned only with the approval of the Provost and the Vice President of Enrollment Management and Career Placement. Forms should be submitted to the Registration Center, Jere Whitson Building, Room 221.

Courses may be repeated with only the first attempt being replaced by the second attempt. Any successive attempts will count in the cumulative grade point average with the last attempt standing as the grade in the course and only the last attempt for that course fulfilling the graduation requirement. Courses used to complete the graduation requirement must have a passing grade. This means that one may have credit for a course only one time in the calculated earned hours which apply toward the degree.

Transfer students applying for admission into the University will have their quality point averages recomputed with regard to repeats; their admission and standing will be subject to the revised average.

All grades received for a course will remain on a student's transcript. A notation is added to indicate that the course has been repeated. The information showing the grade received when the course was repeated is given in the report for the semester during which the course was repeated.

Students may not repeat a course in which they have previously received the grade of "I" (Incomplete). Students must make arrangements with the professor who assigned the incomplete to finish the course during the academic year following the "I" grade.

Students receiving Veterans Educational Assistance benefits may not receive benefits for courses previously passed unless a higher minimum grade is required in the degree program.

Minimum Class

Normally, the University does not offer a course in the freshman and sophomore years for which fewer than twelve students register, or in the junior and senior years for which fewer than eight students register, or in graduate classes for which fewer than six students register; however, the University is not obligated to offer these courses even though the minimum enrollments are met. The same restrictions are effective for a minimum class in the summer term.

Attendance and Withdrawal

Class Attendance. A student is expected to attend each meeting of every class for which he/she is registered. Each instructor is responsible for explaining, in writing, the practice in the treatment of absences at the beginning of each course. Regular class attendance is a definite part of the total performance required for the satisfactory completion of any course, and an unsatisfactory attendance record may adversely affect the final grade recorded for the course. If the attendance record of a student becomes unsatisfactory, the instructor can record a last of date of attendance that can adversely affect Financial Aid, Scholarships, Veteran's Benefits and other types of assistance.

Unsatisfactory class attendance may result in the student receiving a grade of "F." A student who is unable to return to classes due to an emergency or serious accident should notify the Office of Student Affairs. A student who cannot avoid an absence from a class for any other reason is expected to assume the responsibility of explaining his absence to the instructor and for making arrangements to complete the work missed. Tardiness is recorded as an absence. Students may consider a class dismissed and leave the room without penalty if the instructor fails to appear within fifteen minutes. At the end of each period, a ten-minute interval is allowed for changing classes.

Withdrawal from the Institution

1. Students who wish to withdraw from the University during a semester must submit a formal written application (including signature) to the Office of the Registrar. If no administrative holds have been assigned to the student account, such as a disciplinary hold, student requesting to withdraw will receive a grade of "W" in all courses if an official signed withdrawal application is received by the Office of the Registrar. The withdrawal application must be received before or on the last day of classes as specified in Tennessee Tech's official Administrative Calendar.
2. Students who do not timely submit a formal written application (including signature) to the Office of the Registrar will receive a grade of F in each course for which they are registered. Applications for withdrawal will not be considered if received after the last day of classes as specified in Tennessee Tech's official Administrative Calendar.
3. If a student withdraws from classes and receives a "W" grade, the student does not need to apply for readmission if he/she is attending the very next Fall or Spring semester. If the student is skipping a Fall or Spring semester, he/she must apply for readmission (no fee) and can do so the very same day.
4. If a student withdraws from all classes during the time period which the transcript will not reflect a "W" grade, he/she must apply for readmission (no fee) and can do so the very same day. Students withdrawing from summer term do not need to reapply if they plan to attend classes in the Fall.
5. In the summer term, if a grade has been earned during any of the sessions, the withdrawal will be treated as a drop of a course rather than withdrawal so that the grade earned will not be voided by the withdrawal. If withdrawal/drop has been processed in the summer term and the student wishes to register for a later summer session, the student must go to the Office of the Registrar.
6. The refund policies for the University can be found on the Bursar's web page.

If you wish to withdraw you may do so by completing the withdrawal form below which should be submitted to the Office of the Registrar, Jere Whitson Building 221 (registrar@tntech.edu).

Veterans Benefits

Service members, Veterans, and dependents of veterans who are eligible beneficiaries of U.S. Department of Veterans Affairs education benefits or other governmentally funded educational assistance, subject to the conditions and guidelines set forth in Tennessee Code Annotated 49-7-104 as amended, may elect, upon formal application, to defer payment of required tuition and fees until the final day of the term for which the deferment has been requested. Application for the deferment must be made no later than 14 days after the beginning of the term. Students who have been granted deferments are expected to make timely payments on their outstanding tuition and fees balance once education benefits are being delivered. Eligibility for such deferment shall terminate if the student fails to abide by any applicable rule or

regulation, or to act in good faith in making timely payments. This notice is published pursuant to Public Chapter 279, Acts of 2003, effective July 1, 2003.

- Apply for VA Educational Benefits online at: <https://www.vets.gov/education/apply/>
- Review procedures to utilize VA Educational benefits at: <https://www.tntech.edu/em/military-and-veterans-affairs/>

Once you have submitted your VA application online, please provide a copy of the confirmation page (this page appears once application has been submitted), your DD214 Member 4, and proof of Kicker (if applicable) to the Office of Military and Veteran Affairs, room 312 Jere Whitson Building. A copy of your Certificate of Eligibility from U.S. Department of Veterans Affairs must also be submitted (this usually is delivered via regular mail within 3-5 weeks from date that application is submitted. Contact the Office of Military and Veteran Affairs for additional information. veterans@tntech.edu

Veterans Administration General Guidelines:

- VA will only pay for courses required in the degree you are seeking as listed in the university catalog degree requirements.
- You must have at least 12 hours of required courses in your major to get full veteran's educational benefits. Students can take less than 12 hours but any monthly stipends would be reduced.
- VA will only pay for repeating courses with failing grades, unless the TTU catalog specifically states that a certain grade is required. Also, VA will not pay for a course if you have received equivalent course credit for that course from another institution.
- VA will not pay for auditing a course.
- You must attend your classes in order to receive Veterans Educational Benefits. If you stop attending a class, the instructor will report your last date of attendance. The Office of Military and Veteran Affairs will report that date to the VA. VA will adjust your benefits accordingly.

Transcript of Academic Records

Students may obtain a transcript of their academic records by logging into their Eagle Online account; however, alumni with all attendance dates prior to Summer 1986 needing a transcript must be requested using the written request form. Financial obligations to the University must be fulfilled prior to release of a transcript copy. There is no charge for a transcript copy; however, any payments received will be used to support the Educational and General Operation of the University.

Instructions for requesting transcripts can be found on the Registrar's website by clicking [here](#).

Privacy Rights of Students

On May 20, 1975, Tennessee Tech approved a statement of policy that includes provisions for the release of information about students and the rights of students and others to have access to Tech's education records. The complete policy statement of "Privacy Rights of Students" is available on the website of the Office of the Registrar. Additionally, students are sent an annual notice of their Privacy Rights to their TTU student email. For more information, please visit the Registrar's Office webpage.

Use of Social Security Numbers

In accordance with the Privacy Act of 1974, applicants for admission and enrolled students are advised that the requested disclosure of their Social Security numbers is voluntary. Students are notified, however, that only the Social Security number may be used as an identifier for grants, loans, and other financial aid programs according to federal regulations. The student's Social Security number will not be disclosed to individuals or agencies outside Tennessee Technological University except in accordance with the institutional policy on student records.

STUDENT AFFAIRS AND ACTIVITIES

Tennessee Tech provides programs and services which support the students in their intellectual endeavors as well as in their total development. Student Affairs, through its agencies and activities, provides opportunities for students to realize their development potential as physical, emotional, intellectual, social, and spiritual persons. Student Affairs provides for students' welfare by being available to help them resolve problems which affect their personal well-being or which impede their academic progress.

DEAN OF STUDENTS OFFICE

The purpose of the Dean of Students Office is to provide services and programs that enrich the quality of student life and that enhance and compliment the academic mission of Tennessee Technological University by:

- Providing leadership and administrative direction to the Office of Student Activities and Campus Life, and the Office of Judicial Affairs.
- Helping establish and enforce the community standards of the University.
- Responding to the concerns of students, faculty, staff, parents and the community pertaining to student life at the University.

The Dean of Students Office would be the best office for students to visit and receive personalized attention for any concerns they may have at the University.

COUNSELING CENTER

The Tennessee Tech Counseling Center provides a wide range of services designed to help students adjust to and succeed in the university environment. The Center's services include those intended to help students with educational, career, personal, and social concerns. Adjustment to college, stress management, interpersonal relationships, family issues, depression, anxiety, eating disorders, substance abuse, and self-esteem are among the various concerns that students discuss in counseling. In addition to individual counseling, the Center also offers group counseling, which provides students the opportunity to share and learn from others. Strict confidentiality is maintained in the counseling process.

The Counseling Center works with faculty, staff, and student groups within the university community to develop educational programs and projects. These outreach services include workshops that focus on specific issues such as relationships, stress management, test anxiety, study skills, and an array of other topics relevant to the university experience. The Counseling Center also administers a number of standardized tests including ACT, CLEP, MAT, and GRE (subject exam only).

The Counseling Center is located at 307 Roaden University Center. The phone number is (931) 372- 3331. Students can call the Counseling Center or check the Center's web site at www.tntech.edu/counsel/ for information regarding walk-in hours, scheduling appointments, workshops, or available groups.

DISABILITY SERVICES

The Office of Disability Services is designed to assist students with disabilities in their educational development and vocational outcomes. The program provides direct assistance in appropriate classroom accommodations, creation and maintenance of an accessible physical environment, access to technology equipment, and encouragement of independence.

Students with disabilities are urged to come by the Office of Disability Services in Room 112, Roaden University Center, to discuss their educational plans and special needs. Documentation of a disability by professionals is necessary in determining the level of assistance that might be useful.

EAGLE CARD OFFICE

The Eagle Card - Each student receives the first Eagle Card (official TTU ID) free of charge. Eagle Cards may be replaced for a \$10 fee. Eagle Cards are used to access Residential Life halls, the Fitness Center, and many labs and classrooms. Cards are encoded with meal plans and flex dollars (if purchased). Money may be deposited to use as a debit system in the following areas: University Bookstore, MarketPlace (Cafeteria), Starbucks, Chic-Fil-A (Grill), Steak n Shake (Grill), 20-20 Market (Grill), Outtakes (McCord Hall), Papa Johns (McCord Hall), Pollo (The Perch in New Hall North), Crav-ns (The Perch in New Hall North), Which Wich, Au Bon Pain (Volpe Library), Business Office, and the Post Office. The ID is also used for admission to student activities, athletic events, etc. Students must present this card upon request from any college official or be subject to disciplinary action.

MINORITY AFFAIRS

The Office of Minority Affairs provides personal, cultural, social and academic growth for students of color. We provide opportunities for all students of color to learn about their history, take pride in their heritage and explore their potential. We

promote cultural awareness by providing an environment that embraces diversity. We serve as a cultural resource to the campus and the community through our programming and outreach programs. Our office provides programs designed to encourage cultural awareness, as well as, educational opportunities outside the classroom. In addition, we provide tutoring, academic counseling and information on scholarships and internships. Minority Affairs is located in the Leona Lusk Officer Black Cultural Center, which houses a computer lab, conference room and a library of African-American authors. It is a great place to meet new friends and become involved with student organizations.

NEW STUDENT AND FAMILY PROGRAMS OFFICE

The New Student and Family Programs Office facilitates the transition of new students into Tennessee Tech University. It prepares new students for Tennessee Tech's educational opportunities, and initiates the integration of new students into the intellectual, cultural, and social climate of Tennessee Tech. The mission of the Office of New Student and Family Programs is committed to serving students and families by:

- Providing programs and services to assist the transition of new students into the intellectual, cultural, and social climate of Tennessee Tech.
- Exposing new students to the University's educational and extracurricular opportunities in order to foster personal growth.
- Educating parent and family members and establishing partnerships to support students' academic and personal success.
- Developing students as leaders who are engaged inside and outside of the academic community.

STUDENT HEALTH SERVICE

Tennessee Technological University has a student health service which provides medical services for minor illnesses or injuries for any student enrolled at the University on an appointment basis during hours of operation. The health service staff includes nurses, nurse practitioner, physician, and pharmacist who plan and implement care for students during daytime hours Monday through Friday. Students are responsible for charges due to supplies, laboratory testing, treatments, and medications.

The student is responsible for expenses incurred for ambulance service, calls at a local physician's office, emergency services, and other services provided at Cookeville Regional Medical Center.

Prior to registration all students must fill out the Meningitis/Hepatitis B form https://www.tntech.edu/healthservices/pdf/Meningitis_Hepatitis_Form.pdf and the Tuberculosis (TB) Screening form https://www.tntech.edu/healthservices/pdf/Tuberculosis_Screening_Form.pdf

You are required to submit a health history and official record of immunization prior to enrolling. These are:

Full-Time Registration Requirement: Students must provide proof of **two (2) MMR (measles, mumps, and rubella) vaccinations**. Proof of immunity to measles, mumps, and rubella may be provided by meeting one of the following 3 criteria:

- Date of birth before 1957, or
- Documentation of 2 doses vaccine against measles, mumps, and rubella given at least 28 days apart, excluding doses given earlier than 4 days before the first birthday, or
- Documentation of blood test (titer-serology) showing immunity to measles, mumps, and rubella. If any one of the three is negative, proof of 2 doses of vaccine must be provided to Health Services.

Students must also provide proof of **two (2) Varicella (chicken pox) vaccinations**. Proof of immunity to chickenpox is required by meeting one of the following 4 criteria:

- Date of birth before 1980, or
- History of chickenpox illness diagnosed by a healthcare provider or verified by a physician, advanced practice nurse or physician assistant to whom the illness is described, or
- Documentation of 2 doses of Varicella vaccine given at least 28 days apart, excluding doses given earlier than 4 day before the first birthday, or
- Documentation of blood-test (titer-serology) showing immunity to Varicella.

All new incoming students living in on campus housing, under the age of 22, must submit proof of adequate immunization. Adequate proof consists of documentation from a healthcare provider showing a single dose of **Meningitis**

(conjugate vaccine MCV4) given **on or after the 16th birthday**. Students living in on-campus housing are at increased risk for infection.

MEDICAL INSURANCE

Health and accident insurance is available to each student upon his/her registration at Tennessee Tech. Students may choose health insurance options that the TBR has made available at the following website: www.TBRstudentHIX.com. This website explains the meaning of various terms, plans, and coverage types. Additionally, the website presents students with multiple plans that comply with the coverage requirements of the Affordable Care Act (ACA), including plans offered through the ACA "exchange" (where tax credits may be available to offset the cost of coverage) and plans offered "off exchange" (where tax credits are not available). Students can view a plan summary/brochure on-line for any plan contained in the website. If a plan is selected, the website permits students to complete the enrollment process on-line. There is also a toll-free call center to assist with questions about the insurance coverages offered. All students are strongly encouraged to maintain health insurance coverage while in school. Health insurance encourages students to seek earlier intervention for their health issues and provides protection from a potentially overwhelming financial burden.

STUDENT ACTIVITIES

Students are encouraged to participate in those extracurricular activities which afford opportunities for the development of individual initiative or group leadership and cooperation. For the purpose of eligibility for participation in institutionally sponsored extracurricular activities, all students are considered to be in good academic standing as long as they achieve sufficient qualitative and quantitative academic progress to allow them to remain enrolled in the institution. (For additional information, see the Academic Retention Table.) Individual organizations or activities within the institution may have additional requirements for participation.

The Student Government Association (SGA). SGA is composed of all full-time undergraduate and graduate students enrolled at Tennessee Tech. Student Government is composed of executive, legislative, and judicial branches. The purposes of the SGA as stated in the constitution are: to promote student participation in the affairs of the University; to serve as a channel for the expression of student opinion; to support student activities on this campus; and to encourage the development of student responsibility, character, leadership, and citizenship.

Campus Recreation. The office of Campus Recreation is designed to offer students an opportunity for wholesome and enjoyable recreation, for physical fitness, and for developing skills that have carryover values. The office of Campus Recreation is located in the Fitness Center facility across from the Hooper Eblen Center. The Fitness Center provides students the opportunity to meet their personal health and fitness needs. Health Promotions Programs provides free fitness evaluations and assistance with meeting fitness goals. Outdoor Adventure Programs coordinates outings for camping, hiking, rafting and more as well as offering rental of camping equipment. Intramurals offers a variety of sports for both men and women. For information on any of these programs, call 372-6212.

Campus Religious Life. The student religious organizations serve students through organized activities and events such as Bible study, worship services, coffee house discussions, dramatic productions, folk masses, choir concerts, evening devotionals, student retreats, social issue symposiums, and social activities. Some of these groups have student centers near the campus and invite all students to participate in the programs and events planned and carried out by the students.

Eagle. The student yearbook is edited by students. It is a CD summarizing the highlights of student activities each year.

Fraternities. Thirteen social fraternities are presently active on campus: Alpha Gamma Sigma, Alpha Phi Alpha, Kappa Alpha, Kappa Sigma, Omega Psi Phi, Phi Beta Sigma, Phi Delta Theta, Phi Gamma Delta, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi and Sigma Phi Epsilon, Tau Kappa Epsilon.

Homespun. Published annually by the English Department, *Homespun*, contains poetry, fiction, drama, essays, photography, and art by students and faculty. Staff members also gain practical experience in magazine layout and design.

Music Organizations. Students are encouraged to participate in the University music organizations. Credit is offered for participation in groups which are organized as classes (see course descriptions). Some of the major organizations are the Bryan Symphony Orchestra, University Orchestra, Concert Choir, Tech Chorale, Mastersingers, University Wind

Ensemble, Symphony Band, Concert Band, Tech Troubadours and Trouveres, Tennessee Tech Golden Eagle Marching Band, Varsity Pep Band, and Golden Eagle Brass.

The Oracle. *The Oracle* is a weekly newspaper edited by students. This paper contains news items and articles pertaining to the activities of students, faculty, and alumni.

Residence Halls Association. The Tech Residence Halls Association, known as RHA, is the governing body for all students living in residence halls at Tennessee Tech. The purposes of the RHA are to work primarily for the welfare of all residence hall students, coordinate the activities, serve as a channel of student opinion, insure that students are aware of their responsibilities and constitutional rights, encourage the development of responsibility, character, leadership, scholarship, citizenship, and create a new spirit of unity and service.

Sororities. There are seven social sororities active on campus, including Alpha Delta Pi, Alpha Kappa Alpha, Delta Gamma, Kappa Delta, Phi Mu, Delta Sigma Theta, and Zeta Phi Beta.

Tech Village Resident Association. The Tech Village Resident Association, known as the TVRA, is the governing body for all students living in the Tech Village apartments at Tennessee Tech. The purposes of the TVRA are: to be a medium of communication between the residents of Tech Village and the administration of Tennessee Tech, to be an instrument for the purpose of initiating action and for the recommendation of actions toward the improvement and enhancement of resident life, to create, develop and implement social activities for the benefit of the residents, and to be a collective agent in advocacy of the interests of the residents.

WTTU-FM. WTTU-FM, an educational broadcasting service of the University, began broadcasting in May 1972. Students are trained by WTTU staff members and serve in staff positions in news, music, sports, and other programming areas. The WTTU-FM management determines general operating policy in keeping with rules and regulations of the Federal Communications Commission. WTTU has an AP wire service. The 1850-watt station is operated solely by Tech students from 7 a.m. until 1 p.m. at 88.5 Mhz FM and 105 FM on the FNI Cable System. Located on the third floor of the University Center, the station consists of offices and studios.

Student Organizations. The University recognizes the role and scope of student organizations in order to make classroom learning relevant to the many interests of its students. Student organizations support the academic program by (1) providing opportunities for developing and using leadership skills, (2) furthering scholastic awareness, and (3) developing professional, social, and individual interests. There are approximately 220 student groups registered on campus, each with a distinctive and unique purpose and program of activities. The Office of Student Activities, Roaden University Center 122, may be contacted with questions about current organizations or starting new organizations.

Who's Who

Selections to Who's Who Among Students in American Colleges and Universities are made each fall semester from juniors, seniors and graduate students. The selections are based on excellence in scholarship, leadership and participation in extracurricular activities on campus, citizenship and service to the University, and promise of usefulness to business and society.

Distinguished Military Students

Each year the Professor of Military Science, with the concurrence of the President of the University, is authorized to designate outstanding students of the Army ROTC Advanced Course as Distinguished Military Students. Selection of the students is based on aptitude for military service, high academic accomplishments, leadership ability, and moral character.

ALUMNI ASSOCIATION

The purpose of the Alumni Association is to promote the educational, social, and economic interests of Tennessee Technological University, its faculty, friends, current students and alumni. Graduates of Tennessee Technological University (those receiving a degree) and those completing an approved pre-professional program are recognized as alumni.

The Director of Alumni Relations oversees the activities of the Alumni Association. The work of the Association is administered through the Office of Alumni Relations in conjunction with the Association's Advisory Board. The Alumni Advisory Board consists of alumni representatives appointed by the Director of Alumni Relations and the current Advisory Board. The Board includes representatives from all six colleges and from the Upper Cumberland, Nashville, Knoxville, Tri-Cities, Atlanta, and Huntsville, Alabama areas. Class years of board members range from the early 50's thru the late 90's.

CAREER DEVELOPMENT

Russ Coughenour, Director

The Center for Career Development, located on the third floor of the Roaden University Center, provides a variety of career resources for students and alumni. **Freshmen** and **sophomores** are encouraged to complete one or more career assessment programs to assist in determining their major course of study and to examine potential employment opportunities within various professions. Full-time students who have reached sophomore status and have achieved a 2.5 overall GPA are eligible to participate in the **Cooperative Education Program**. Program participants obtain on-the-job learning experiences that can provide a realistic evaluation of a career choice along with giving them the opportunity to earn supplemental income to aid with college expenses. Please contact Sonja Higginbotham in the Center for Career Development for more details on Cooperative Education options.

Recognizing the benefits to be gained through the use of cutting-edge technology, Career Development maintains a full-service web site at (www.tntech.edu/career) and leverages the Handshake system for job listings, job fair information, student resumes and employer contacts. Students, alumni, and employers may access information about campus recruiting activities via this website.

As the university's centralized recruiting facility, students looking to expand their employment opportunities should register with the office for assistance with their job search. This is especially important for seniors getting ready to transition into the world of work upon graduation. Advice and suggestions to maximize interviewing strategies and resume preparation are also provided. Registration is required for students and alumni to participate in on campus interview activities. Registration is free for all students and alumni.

MOTOR VEHICLES

All students are permitted to maintain vehicles on the campus, subject to the approval of the University. Registration of motor vehicles is required beginning with the fall semester and continuing throughout the entire year. All vehicles operated on campus by full-time, part-time, or night-time students must be registered. Vehicles will be issued permits for specific parking areas, and compliance with all rules and regulations is required. Parking restrictions are effective in parking lots from 7:45 a.m. until 4:30 p.m., Monday through Friday each day that university offices are officially open, except east dorms where 60-minute parking is in effect daily from 7:30 AM until midnight. For information regarding University Police and Parking and Traffic Regulations, refer to the TTU police website at www.tntech.edu/police.

DRUG FREE CAMPUS POLICY

The Tennessee Technological University community (Faculty, Staff and Students) complies with the policies and penalties relative to controlled substances (illicit drugs) and alcohol, as required by the Drug Free Workplace Act of 1988 and the Drug Free Schools and Communities Act Amendments of 1989. As an employee and/or student at Tennessee Technological University, you are required to be knowledgeable of and comply with the Drug Free Campus/Workplace Policy, the applicable provisions of which are summarized below: It is the policy of this institution that the unlawful manufacture, distribution, possession, use or abuse of alcohol and/or illicit drugs on the Tennessee Technological University campus or on property owned or controlled by the University is strictly prohibited. All categories of employees and students are subject to this policy and to applicable federal, state and local laws related to this matter. Additionally, any violation of this policy will result in disciplinary actions as set forth in the applicable sections of this policy.

STUDENT COMPLAINT PROCEDURES

Whenever possible, students are encouraged to seek an informal resolution of the matter directly with the faculty or other individual(s) involved. However, if an informal approach is neither successful nor advisable, the student may file a formal written complaint. You may review the complete policy document by visiting Policy Central - 301 TTU Student Complaint.

1. A student complaint form should be submitted "online" to the Assistant Vice President for Student Affairs.
 - a. It should contain (at a minimum) the student's name and official TTU email address, the date of the alleged conflict or action, a summary of the complaint, a list of other persons who may provide information and any appropriate documentation. The student must also include the resolution or outcome he or she is seeking.
 - b. If a student wishes to submit a complaint anonymously, just type "Anonymous" in the name section and any other section that may identify you. *The resolution of a complaint submitted anonymously might be difficult to achieve. However, at least the student was able to notify the University of the situation while maintaining privacy. The complaint must be submitted within ten (10) business days of the event giving rise to the complaint.
2. Within five (5) business days of receiving the complaint, absent good cause, a conference will take place with the student and a staff member from the Assistant Vice President for Student Affairs office.
3. The student must submit all relevant documentation within ten (10) business days of the date the student files the complaint.
4. The staff member will notify appropriate persons and request any information or further documentation needed to resolve the complaint.
5. The staff member may attempt to resolve the complaint by encouraging discussion between the student(s) and other students or third-party members of the university community, or by taking the appropriate action to resolve the complaint.
6. A review of the complaint with the supervisor(s) or others in the line of supervision of third parties, if applicable, may be used when deemed appropriate and beneficial to the process.
7. Absent good cause, the staff member assigned to the complaint will file a final written resolution or a finding of "unresolved" in the Assistant Vice President for Student Affairs office within fifteen (15) business days of the date the student submits the relevant documentation. If there are circumstances requiring an extension of this deadline, the staff member assigned to the complaint will notify the parties involved.
8. If the student is not satisfied with the outcome of the complaint, the student may appeal the outcome within five (5) business days of receiving the final written resolution or finding of "unresolved." The student must file with the Assistant Vice President for Student Affairs a written request for an appeal committee review.
9. The appeal committee will consist of five representatives who will serve a one-year term. These representatives will comprise: two student members appointed by the SGA president; one member appointed by the Vice President for Academic Affairs; one member appointed by the Vice President for Student Affairs; one member appointed by the Vice President for Planning and Finance.
10. Absent good cause, the appeal committee will issue a final written decision within twenty (20) business days of the date the student submits an appeal. If there are circumstances requiring an extension of this deadline, the chair of the committee will notify the parties involved. The committee's decision will be final.

STUDENT RESPONSIBILITY

All students are required to have knowledge of rights, responsibilities and regulations pertaining to campus life which are published in the *Student Handbook*, www.tntech.edu/studenthandbook/
Each student is responsible for maintaining communication with the University by keeping officials informed at all times of current address (including zip code) and telephone number.
Students are responsible for the proper completion of their academic programs; for familiarity with requirements of the University Catalog under which they intend to graduate; for maintaining the grade average required; and for meeting all other degree requirements. A student may receive counsel from an academic advisor; however, the final responsibility remains that of the student.

JUDICIARY PROCEDURES

Judiciary procedures at the University do not constitute legal actions, and the decisions are not to be equated with verdicts reached by courts of law. These procedures simply involve the fact-finding and decision-making processes of an educational institution.
Detailed procedures for the disciplinary system are printed in the "Disciplinary System Manual." Copies of the manual are located in the Dean of Students Office.

RESIDENTIAL LIFE

The Office of Residential Life realizes the positive influence that living arrangements can have on a student's life and education. We feel the decision to live in University housing will provide additional opportunities for personal growth, educational development, connectedness, and leadership experiences. Studies consistently show that students living in the residence halls have higher grade point averages with lower dropout rates and are involved in more campus activities than those living at home or off campus.

Tennessee Tech has ten residence halls; one for men, one for women and eight co-educational halls accommodating approximately 2,300 students. Each residence hall is supported by a Hall Director, a live-in professional staff member, and between 9 and 12 Resident Assistants (RAs), upper class students hired to provide support, guidance and community development on each of the floors. Each residence hall entry is secured by electronic card access, with only assigned residents and staff being allowed entrance. **Note: (from 2013-2020) all traditional residence halls have been totally renovated.**

Crawford Hall	Crawford Village – all female	Browning/Evins Halls	Men's Village – all male
Maddux/McCord Halls	Engineering Village – coed	Cooper/Dunn Halls	houses about 200 residents in a traditional residence hall setting. Cooper/Dunn closed for the 2019-20 academic year for a total renovation, re-opening in August 2020.
MS Cooper/Pinkerton Halls	Global Village – coed	Ellington/Warf Halls	Arts & Media Village - coed
Jobe Hall	a co-ed traditional residence hall housing about 130 residents. Jobe Hall is open to any resident. Contact the Office of Residential Life for specific information.		
Murphy Hall	Honors Specialty Hall – coed Business and Honors will be combined in Jobe Hall for the fall 2015, due to hall renovations.		
New Hall North	The Tree House - Environmental Village – coed		
New Hall South	The Service Station - Service Village - coed		

Living-Learning Villages

The Village concept was conceived to create smaller, more personal groups within the larger university, to enhance student-faculty interaction beyond the classroom and to enhance positive student connections within the University. Each Village is organized around a common theme which is supported by a Faculty Head and Hall Director, working together with the Residential Life staff and the Village residents.

New Hall North

"Treehouse" Environmental Village

New Hall North houses 238 co-ed residents offering both double and single rooms with private baths. Additional amenities include: a great room for residents to gather on each floor, laundry rooms on each of the upper floors, as well as three study rooms centrally located within the hall. Also housed in New Hall North is the Environmental Village, including the Faculty Head office. As a part of the "Treehouse" there are a number of activities and programs scheduled throughout the academic year supporting environmental issues and additional opportunities for interaction and connection to the campus community. New Hall North is available to all students with selected rooms held for new, incoming freshman residents. Contact the Office of Residential Life for specific information.

Attached to New Hall North is the sorority wing; housing chapter rooms for five campus sororities, the classroom for the Tree House, "The Perch" (grill and convenience store), and a recreation area - both located on the first floor.

New Hall South

"The Service Station" Service Village

New Hall South houses 358 co-ed residents, offers double rooms with private bathrooms. Additional amenities include: an atrium lounge that includes a large screen television and a ping pong table, four study rooms located throughout the hall as well as a classroom on the fourth floor. Also housed in New Hall South is the Service Village including the Faculty Head office. As a part of "The Service Station" there are a number of activities and programs scheduled throughout the academic year supporting service opportunities and additional chances for interaction and connection to the campus community. New Hall South is available to all students with selected rooms held for new, incoming freshman residents. Contact the Office of Residential Life for specific information.

Maddux/McCord Hall

Engineering Village

Maddux/McCord Hall, a co-educational traditional residence hall, housing about 250 residents is available for students majoring in any discipline within the College of Engineering. The Engineering Village offers additional support for engineering students; tutors hired specially to provide direct academic support for engineering students, a tutoring lab, a computer lab specially equipped with engineering programs, a classroom, two kitchens, study lounges and the Faculty Head office. As a part of the Engineering Village, there are a number of activities and programs scheduled throughout the academic year geared towards students taking engineering classes. Also housed in McCord Hall is the 20/20 Market, a convenience store and Papa John's pizza. Contact the Office of Residential Life or the Basic Engineering Program for specific information.

Crawford Hall

Women's Village

A women's residence hall housing approximately 200 residents. In addition to the normal traditional hall amenities, also housed in Crawford Hall is the Faculty Head office, a kitchen, study rooms and a classroom for the Women's Village. As a part of the Women's Village program, there are a number of activities and events scheduled throughout the academic year selected to support women on a college campus. Contact the Office of Residential Life for specific information.

Murphy Hall

Honors Hall

Murphy Hall, a co-educational traditional residence hall, housing about 120 residents, is available for students accepted in the Honors program. All Murphy residents must be approved by TTU's Honors Program to reside in the Honor's Village. Included in the Honors Village is a multipurpose room, study rooms, a library, a kitchen as well as a Faculty Office for the Honors Village. Contact the Office of Residential Life or the Honors Department for specific information.

Ellington/Warf Hall

Arts & Media Village

Ellington/Warf Hall, a traditional co-educational residence hall housing approximately 190 residents. In addition to the normal traditional hall amenities, also housed in the Arts & Media Village is the Faculty Head office, a media room, kitchen, study rooms and a classroom for the Village. Contact the Office of Residential Life for specific information.

MS Cooper/Pinkerton Hall

Global Village

MS Cooper/Pinkerton Hall, a co-educational residence hall, housing about 175 residents, is available for International and American residents, wishing to live together in an international environment. American and International residents are paired together as roommates. Contact the Office of Residential Life or the Office of International Education for specific information.

Browning/Evins Hall

Men's Village - "The Cave"

Browning/Evins Hall; "The Cave" - the Men's Village, a residence hall housing approximately 250 male residents. In addition to the normal traditional hall amenities, also housed in The Cave is the Faculty Head office, a kitchen, study rooms and a classroom for the Men's Village. Contact the Office of residential Life for specific information.

Specialty Housing

In addition to our Living Learning Villages we also have 2 specialty housing areas: Honors Program located in Murphy Hall. Jobe Hall provides support for business majors. In specialty housing, the Residential Life staff along with program mentors will provide opportunities for students to assist one another, both academically and personally. Activities include faculty involvement programs, study groups, technology resources and academic support programs. These specialty

areas are anticipated to become the Entrepreneurial Village, TBA. Jobe Hall will re-open the fall 2015 and Murphy Hall spring 2016; new amenities will be including all new; furniture, HVAC, doors, flooring, paint, hallway carpet and updated lounge and bathrooms.

Tech Village Apartments

There are 228 newly renovated 1- & 2-bedroom apartments for all students as well as students married or single with children, graduate students, and faculty/staff. Included in Tech Village is a community Center with pool and ping-pong tables, a computer lab, laundry building as well as the Campus Food Pantry. Contact the Office of Residential Life for specific information.

Additional benefits of Campus Living

Each residence hall and apartments may vary somewhat in the amenities offered, but they all include cable, local phone service, "free" laundry, and RESNET (internet service). All are tobacco free. To view the amenities chart or to apply for campus housing visit our web site at www.tntech.edu/reslife. The web site is full of information, including the campus housing handbook, Guide for Successful Living and a Frequently Asked Questions section. However, if you still find yourself in need of additional information, you can contact us at either reslife@tntech.edu or (931) 372-3548.

If you are interested in living in one of the Villages or any of the other halls, you may make your request on the housing application, on line at: www.tntech.edu/reslife/applications/.

FINANCIAL AID

The Office of Financial Aid at Tennessee Technological University (OFA) is committed to helping students achieve their educational goals in accordance with federal, state, and institutional policies. The following pages explain ways in which the OFA ensures compliance. We welcome all interested parties to view this catalog and are interested in feedback you have regarding its contents or presentation. You may provide such feedback at financialaid@tntech.edu Subject Line: 2018/19 Catalog Feedback.

Philosophy of Student Financial Aid and the OFA. The primary purpose of student aid is to provide financial resources to students who would otherwise be unable to pursue post-secondary education. To accomplish this stated purpose, the following is an outline of the Philosophy of the TTU Financial Aid Office.

- We will make every effort to meet the demonstrated needs of all students at TTU to the extent funding will permit in an ethical manner.
- We will award all aid on the basis of demonstrated financial need except where funds are specified for recognition of special talents.
- We will exercise adequate controls to ensure that need-based awards do not exceed the documented need.
- We must recognize that the primary responsibility for financing post-secondary education rests with the student and his/her family. Financial assistance from TTU and other sources is only intended as supplementary to the efforts of the family.
- We will help students seek, obtain, and make the best use of all financial resources available.
- We will provide consumer information in a clear concise manner describing all Direct and Indirect costs.
- We will inform students of all conditions under which an award is granted at the time the offered award is made.
- We will refrain from and discourage others from making any public announcement of the amount or the type of financial aid awarded a student in order to protect the confidentiality of the economic circumstances of the student and his/her family.
- We will respect the confidentiality of student records. Information will be released only with the written or electronic consent of the student and/or his/her family.
- We will never administer aid to accomplish disciplinary objectives.

The OFA Principles of Financial Aid. The Financial Aid Office staff at Tennessee Tech University has adopted the following principles of student financial aid administration:

- The purpose of any financial aid program - institutional, governmental, or private - should be to provide monetary assistance to students who can benefit from further education but who cannot do so without such assistance. The primary purpose of a collegiate financial aid program should be to provide financial assistance to accepted students who, without such aid, would be unable to attend that University.
- Each University has an obligation to assist in realizing the national goal of equality of educational opportunity. The University, therefore, should work with schools, community groups, and other educational institutions in support of this goal.

- The University should publish budgets that state total student expenses realistically by including, where applicable, maintenance at home, commuting expenses, personal expenses, and necessary travel.
- Parents are expected to contribute according to their means, considering their income, assets, number of dependents, and other relevant information. Students themselves are expected to contribute from their own assets and earnings, including appropriate borrowing against future earnings.
- Financial aid should be offered only after determination that the resources of the family are insufficient to meet the student's educational expenses. The amount of aid offered should not exceed the amount needed to meet the difference between the student's total educational expenses and the family's resources.
- The amount and type of self-help expected from students should be related to the circumstances of the individual. In the assignment of funds to those students designated to receive financial aid, the largest amounts of total grant assistance should go to students with the least ability to pay.
- The University should review its financial assistance awards annually and adjust them, if necessary to reflect changes in the financial needs of students and the expenses of attending the institution. The University has an obligation to inform students and parents of the financial aid renewal policies for enrolled students at the time of the initial offer of financial assistance.
- Because the amount of financial assistance awarded reflects the economic circumstances of students and their families, the University should refrain from any public announcement of the amount of aid offered and encourage students, their secondary schools, and others to respect the confidentiality of this information.
- All documents, correspondence, and conversations between and among aid applicants, their families, and financial aid officers are confidential and entitled to the protection ordinarily arising from a counseling relationship.
- Concern for the student should be paramount. Financial aid should be administered in such a manner that other interests, important though they may be, are subordinate to the needs of students.

Tennessee Tech University Policy & Procedure Manual. In order to remain compliant on all federal, state and institutional guidelines the OFA publishes a secondary publication, The OFA Policies & Procedures Manual. The P/P Manual may be reviewed on request from the OFA.

The Director of Financial Aid is responsible for compliance with Federal, State and Institutional Policies. The Policies and Procedures manual will be updated on a rolling basis. As policy decisions are changed and new processes become part of daily office functions, this manual will be updated as necessary. It is the responsibility of each staff member to report changes in his or area to ensure the accuracy of this manual.

Often members from other offices on campus will be affected by changes in policy or procedure within OFA. When this is the case, all affected staff will meet to discuss the best recourse of action and implantation of new policies and procedures. When necessary, policy and procedural changes will be routed to other offices for approval.
Financial Aid Processed

Tennessee Tech University invests substantial funds in institutional financial assistance to help make it possible for students who are admitted to the University to attend. Currently, approximately 79% of Tech students who applied for need based aid receive some form of federal, state, institutional, or outside financial assistance need-based assistance, with total assistance amounting to over \$93,000,000.

Most aid awarded by the University is offered as a combination of grant, loan and student employment. Tech takes full advantage of the available federal and state financial assistance programs when awarding financial aid to students. Additionally, through the generosity of loyal alumni and other friends of the University, Tech students benefit from a generous competitive scholarship program.

Definitions

COA: Cost of Attendance (tuition, fees, room, and board, estimated cost of books, estimated personal/living costs and estimated transportation costs). The term "Direct COA" only includes tuition, fees, and estimated costs for books and supplies. Room and board are included as "Direct COA" only for students who reside at or have purchased a meal plan through Tennessee Tech University.

EFC: Expected Family Contribution; the minimum amount a family is expected to contribute for the student's education for a given academic year. The EFC is calculated by the FAFSA and assumes families will finance education utilizing current income, past savings, and student and/or parental borrowing.

Demonstrated Need: The difference between the COA and the EFC.

FAFSA: Free Application for Federal Student Aid; used in awarding federal and state grants and scholarships as well as loans and student employment.

SAP: Satisfactory Academic Progress: federal and institutional requirement that students must consistently progress toward completion of degree requirements; includes GPA and earned hours measured at the end of each academic year.

Financial aid APPLICATION PROCEDURES for prospective students

- Submit the FAFSA (www.fafsa.ed.gov) between October 1, 2016 and June 30, 2018.
- The Title IV Code for Tech to receive the FAFSA results is 003523.
- All prospective students who want consideration for financial assistance must complete the FAFSA. This includes anyone wanting consideration for the State Lottery Scholarship Program.
- Notification of financial aid awards for admitted applicants will occur by mid-March, with admitted.
- Students accept or decline financial aid awards via their Eagle Online account.

Financial aid APPLICATION PROCEDURES for currently enrolled/returning students

Currently enrolled/returning students who wish to continue eligibility for need-based financial aid (and for the Tennessee Education Lottery Scholarships for Tennessee residents) must complete the FAFSA each year. Tech encourages students to complete the FAFSA as soon as possible between October 1, 2017 and June 30, 2019. Returning Tennessee students who qualified for the State grant (TSAA) in previous years must complete the FAFSA by March 1 to be considered for renewal.

The Department of Education will send renewal notices to students in October of each year via email.

Financial Aid Awards. If the results of the FAFSA reveal that a student has a financial need, Tech will normally offer the student a financial aid award that consists of gift aid (federal and state grants) and self-help (loans and student employment). Institutional funds, federal funds, state funds and funds provided to the student through outside organizations are all considered a part of the need-based financial aid package and are applied to need first, per federal regulations. The need-based programs commonly available at Tech are described here:

Grants

Federal Pell Grant (PELL): The federal government provides direct assistance to eligible students through the Federal Pell Grant Program. Eligibility for the Federal Pell Grant is determined by the results of the FAFSA. The maximum EFC to receive a Pell Grant is 5328.

Federal Supplemental Educational Opportunity Grant (SEOG): Federal Supplemental Educational Opportunity Grants are awarded by Tech to students with exceptional financial need, defined as those students who are eligible for Pell Grant. SEOG funds are limited and are awarded until funds are exhausted.

Tennessee Student Assistance Award (TSAA): Students who are residents of Tennessee apply for the TSAA via the FAFSA. To be eligible, a student must have graduated from a Tennessee high school, have been a continuous resident of Tennessee for the twelve-month period preceding the start of the academic year for which the grant is made, and have an EFC of \$2100 and below (subject to change per state funding).

Returning students wishing to renew the award must complete the FAFSA before March 1st to remain eligible. Further information may be obtained from the Tennessee Student Assistance Corporation, Suite 1950, Parkway Towers, 404 James Robertson Parkway, Nashville, TN 37243-0820. The phone number is (800) 342-1663 or (615) 741-1346. The web site is www.TN.gov/collegepays. The state of Tennessee is the final authority on eligibility for the program. Tech is not responsible for replacing lost state grant funding.

Tennessee Education Lottery Scholarship Program (HOPE): The state of Tennessee offers scholarships of up to \$8,250 (\$2250 per Fall, Spring and Summer and maximum supplemental award is \$1500) for Tennessee residents who attend an approved college or university in Tennessee. The FAFSA is the application for the TELS funding and must be completed by state-established deadlines, as indicated on FAFSA on the Web at www.fafsa.gov. Information on all requirements for the TELS may be found at www.TN.gov/collegepaystn.com. The state of Tennessee is the final authority on eligibility for the program. Tech is not responsible for replacing lost state grant funding.

Loans. Federal Direct Student Loan Program (DIRSUB and DIRUNS): These federal loans up to \$3,500 are available to first-year undergraduate students. Upon earning 30 credits, students may obtain loans up to \$4,500 for the sophomore year, and, upon earning 60 credits, students may obtain loans of up to \$5,500 per year for the remaining years of undergraduate study. Students may request an additional \$2,000 per year in unsubsidized loan funds.

Student Employment. Student employment at Tech is the Federal Work Study Employment Program. When an offer of student employment of any type is extended by the University and accepted by the student, this offer does not guarantee that the student will earn the full amount of the award. The student will be paid only for the hours worked, and the award amount represents maximum gross wages a student may earn. Earnings are paid directly to the student; they are not credited to the student's account in the Bursar's Office. To receive a paycheck, a student employee must have an I-9 form and a W-4 form on file in the Human Resources Office.

Federal Work Study Employment Program (FWS): Through the Federal Student Employment Program, part-time employment is offered to students to help them meet their financial need. A student may earn no less than the prevailing minimum wage rate for an average of ten (10) hours per week while enrolled as a regular student during the academic year.

Withdrawal from Tech and Return of Funds. Return of Federal Title IV Student Aid: When a student who has Federal Title IV student aid withdraws from the University or does not return from an approved leave of absence, or takes an approved leave of absence for longer than 180 calendar days (including summer), the unearned portion of those funds must be returned to the federal student aid programs. Federal Title IV funds that may have to be returned include the Federal Pell Grant, the Federal Direct Loan, the Federal Direct Parent Loan for Undergraduate Students (PLUS), the Federal Perkins Loan and the Federal Supplemental Educational Opportunity Grant (SEOG). The unearned portion of Federal Title IV funds is determined by dividing the number of days in the term that have passed as of the date of withdrawal (last date of class attendance) by the total number of days in the term. If the withdrawal occurs after 60% of the term has elapsed, no return of Title IV funds is required. The Office of Financial Aid calculates the Return of Title IV funds amount and informs the Bursar's Office of the results of the calculation.

Federal regulations require funds be returned to federal programs in the following order: Unsubsidized Federal Direct Loans, Subsidized Federal Direct Loans, Federal Perkins Loans, and Federal Direct PLUS Loans. If funds remain after repaying all loan amounts, the remaining funds are repaid to Federal Pell Grants and Federal Supplemental Educational Opportunity Grants (SEOG).

Return of State and Institutional Student Aid: When a student who has state and/or institutional student aid withdraws from the University or does not return from an approved leave of absence, or takes an approved leave of absence for longer than 180 calendar days (including summer), the University returns the unearned portion of those funds to the state and/or the University.

Student Financial Responsibility: Students and parents should be aware that the requirement to return Federal Title IV assistance and the policy to return state and institutional aid might result in a balance due to Tennessee Tech University; the student and/or student's family is responsible for paying any balance resulting from the return of Title IV aid and state and institutional funds.

Scholarships. Financial need is not a consideration in awarding scholarships at Tech, with the exception of a number of scholarships whose donors require it. Federal regulations, however, do require that any assistance, including competitive scholarships, first apply towards the demonstrated need when awarding need-based aid.

All qualified applicants are considered for Tech's competitive scholarships, if they complete the Institutional Application by the posted priority date of December 15 of the preceding year.

Satisfactory Academic Progress. Federal regulations require the Office of Financial Aid at Tennessee Tech University to establish and apply reasonable standards of satisfactory academic progress for the purpose of the receipt of financial assistance under the programs authorized by Title IV of the Higher Education Act. The law requires institutions to develop policies regarding satisfactory academic progress (SAP). Each institution must design criteria which outlines the definition of student progress towards a degree and the consequences to the student if progress is not achieved. TTU students who wish to be considered for financial aid must maintain satisfactory academic progress in their selected course of study as set forth in this policy.

Tennessee Tech University Policy. The Office of Financial Aid evaluates student academic progress at the end of each Spring Semester for continuing students who have submitted a FAFSA for the new year and weekly thereafter as new FAFSA's arrive. Students with transfer hours will be reevaluated as the Institution records those hours on the student's transcript. Students are evaluated on the basis of three criteria: 1) grade point average (GPA.), 2) pace (PTERM), and 3) maximum time frame limitation (MAXHRS).

Please note that for SAP purposes, the Federal government requires that Tennessee Tech University use coursework completed at Tennessee Tech University in addition to transfer hours/courses that apply to your degree as outlined in your Academic Plan. Also, the Academic Fresh Start program is an institutional policy that is NOT considered for federal aid policy.

Criteria One – Qualitative - Cumulative Grade Point Average (GPA). To receive financial aid, a student must maintain a minimum qualitative measure of progress defined as cumulative G.P.A. as listed below:

1. Freshmen must have a minimum cumulative GPA of at least 1.6
2. Sophomores must have a minimum cumulative GPA of at least 1.8
3. Juniors must have a minimum cumulative GPA of at least 2.0
4. Seniors must have a minimum cumulative GPA of at least 2.0
5. Graduate Students must have a minimum cumulative GPA of at least 2.0

Criteria Two: Pace (PTERM). In order to maintain financial aid eligibility, all students are required to complete 67% of the total credit hours attempted.

How to calculate PACE

Cumulative number of credit hours earned

Cumulative number of credit hours attempted

Criteria 3: Maximum Time Frame (MAXHRS). Undergraduate students at Tennessee Tech University may attempt a maximum of 180 credit hours.

Additional requirements for renewal of federal (Title IV), state, and institutional aid, including Federal PLUS:

- Students must be enrolled at least half-time (6 credits) in order to be eligible for any Title IV (except Pell Grant) or state assistance.
- Grades and cumulative earned credits are reviewed at the end of each academic year for all students, unless stated otherwise by the Director of Financial Aid.

Definitions and regulations concerning full-time student status, course schedule changes, unauthorized withdrawal from class, and removal of conditional grades are stated in other sections of the University Catalogue.

Students with Disabilities. Students with disabilities who are taking a reduced course load and who have received approval of full-time status will not be denied consideration for financial aid. The amount of aid awarded, however, will be reduced to the proportionate amount that corresponds with the student's course load. For example, a minimum of twelve (12) credits per semester is required to receive student aid as a full-time student. If a student has received approval from the Disability Support Committee to be considered a full-time student for a course load of eight (8) credits in a given semester, the Tech-funded aid will be reduced to 2/3 of the amount it would have been if the student were taking twelve (12) or more credits. A course load of six (6) credits will always be considered to be half-time. No Tech-funded aid will be available to any student who is enrolled less than half-time.

Revision of Financial Aid Awards. Financial aid is dynamic and may change as new information becomes available to the Tech Office of Financial Aid. Any financial aid package is subject to revision (even during the academic year) for any of the following reasons:

- In the process of verifying the information the student/parent reported on the need analysis form(s) (FAFSA), an error is discovered which, when corrected, changes the student's eligibility.
- A change in regulations governing federal or state programs occurs and requires an adjustment to be made.
- Funding levels in federal or state programs are reduced.
- The student receives additional financial assistance, including, but not limited to, outside scholarships, from a source not listed on the most recent award notification or on the Eagle Online.
- The student fails to meet satisfactory academic progress standards for renewal of financial aid.
- The Financial Aid Office discovers any error, clerical or other, on an award.
- The student fails to complete required financial aid applications for need-based federal, state and institutional aid, including any documents required for verification of FAFSA information.

Please note that any aid reduced based on the above will not be replaced by Tech-funded grant.

Financial Aid for Study Abroad. Tech students enrolled in study abroad programs administered (sponsored) by Tech are eligible for competitive-based and need-based financial aid on the following basis:

- The total cost of such a program will be defined as tuition, participation fee (if any), an allowance for round trip airfare, a reasonable allowance for ground transportation in the foreign country, an allowance for room and board, books and required supplies and an allowance for incidental personal expenses. The student must report these costs to the Financial Aid Office via a Consortium Agreement.
- The expected family contribution will be calculated using the results of the FAFSA.
- All forms of financial aid for which the student would normally qualify will be applicable, such as campus-based Title IV and other Title IV funds, as well as any outside loans or scholarships the student might have.
- In cases where the total cost of the study abroad program is less than the total cost of a semester at Tech (as a resident student), the financial aid package will be based on the cost of the study abroad program.

- Tech students receiving financial assistance from the University who choose to participate in one of our exchange programs are considered to be Tech students. The financial aid awarded to the student to meet the costs of the exchange program are considered expended for the original length of the program. In other words, a student who elects to participate in a one-year exchange program is considered to have been awarded two semesters of aid. If the student decides not to complete the full year of the program, the student should realize that two semesters of aid have been used, even though the entire program was not completed.

The above policies apply to study abroad programs that occur during the fall, spring and summer semesters of the academic year.

Students using federal or state aid for study abroad programs must complete a Consortium Agreement as described in the literature from the Study Abroad Office on campus.

Transfer Students. A student transferring to Tech who is seeking financial assistance must submit an accurately completed FAFSA (www.fafsa.gov) as early as possible in order to determine financial need for the upcoming year. A transfer student shall be eligible for all forms of financial aid:

1. the student's previous college academic record is commensurate with the requirements for the award;
2. Had the student entered Tech during the first year in college, such an award would have been awarded.

NOTE: The number of semesters for which a transfer student may receive Tech-funded aid is based on the classification of the student upon enrollment. For example, if a transfer student enrolls at Tech as a sophomore, that student may receive aid for a total of six (6) semesters. A student enrolling as a junior may receive of four semesters, and so forth.

Additional Policies

- The main method of communication from the Financial Aid Office is to the student, via the student's Tech-assigned email address. Students must communicate with parents concerning financial aid award information, requirements, etc.
- Most information about the student's financial aid award(s), requirements for completing the financial aid process, costs of attendance, etc. may be found on Eagle Online. The Financial Aid Office does not mail paper award letters or "missing documents" letters home to Tech students.
- The total amount of Tech gift aid (scholarships, fellowships and/or grants) a student is eligible to receive may not exceed our direct cost of attendance (tuition, fees, room, and/or board). If the total amount of Tech-funded gift aid exceeds the direct cost of attendance, a portion of the Tech gift aid will be reduced accordingly.
- A student may not receive gift aid (scholarships, fellowships and/or grants) from all sources (Tech, federal, state, private) in excess of the total cost of attendance at Tech (tuition, fees, room, board as well as an estimated allowance for books, transportation, and personal/living expenses). If the total amount of gift aid from all sources exceeds the total cost of attendance, Tech gift aid (scholarships, fellowships, and/or grants) will be reduced accordingly.
- All outside financial assistance or scholarships received by a student attending Tech must be reported to the Financial Aid Office, including the annual amount of the award and whether or not the award is renewable past the first year. Tech reserves the right to make adjustments in the financial aid package offered to students who receive assistance from other sources.
- Tech scholarships and grants are based on a normal course load (12 -18). Additional costs incurred by a student taking an overload will be incurred at that student's expense.
- Recipients of the Tennessee Education Lottery Scholarship(s) who begin enrollment in any term as a full-time student must maintain full-time status throughout the semester to continue receiving this award. Exceptions to this rule must be approved by the Appeals Committee prior to the student's dropping below full-time status. Only medical and family emergency issues are considered for exceptions. More information may be found at: www.collegepaystn.com. Recipients of the Tennessee Education Lottery Scholarship(s) must complete the FAFSA every year by the state-established deadline as printed on the FAFSA.
- Students who accept/decline financial aid awards via Eagle Online are electronically signing their award and agree to the terms of the financial aid package as listed in the Tennessee Tech University Catalogue, in other Tech publications, and on the Tech website.
- The following are the definitions for enrollment status for financial aid, including Tech scholarships and grants:
 - Full Time: 12 credits or greater
 - 3/4 Time: 9 - 11.99 credits
 - 1/2 Time: 6 - 8.99 credits
 - Less than 1/2 time: less than 6 credits
- The following are earned credit requirements which establish Federal Direct Loan amount eligibility:

- Less than 30 earned credits: Freshman-level Stafford Loan (\$3,500)
- 30 to 59 earned credits: Sophomore-level Federal Stafford Loan (\$4,500)
- 60 or more earned credits: Junior and Senior-level Federal Stafford Loan (\$5,500)

Office Location and Hours

Office Location:
Jere Whitson Hall Room 302
Hours of operation: Monday-Friday 8:00am-4:30pm
Telephone: 931.372.3073
Fax: 931.372.6309
E-mail: financialaid@tntech.edu

SCHOLARSHIPS

Tennessee Tech scholarships are awarded to selected students based on academics, leadership, financial need, and other criteria.

***All Tennessee Tech scholarships are competitive and not guaranteed. Scholarships are awarded based upon available funding.*

ScholarWeb is TTU's scholarship database that houses the TTU Scholarship Application and criteria for over 600 TTU scholarships. The ScholarWeb application opens annually on August 1 and closes on December 15. ScholarWeb can also be used to search for eligibility regarding scholarships.

University High Flyers Scholarship for Tennessee Students. The University High Flyers Scholarship is offered to eligible incoming freshmen and is based upon ACT/SAT scores and high school GPA. These scholarships are offered to high school seniors who meet all criteria for the scholarship.

Students must maintain full-time status, complete service hours, and maintain a 3.25 overall combined grade point average by the end of their fifth semester at Tech for scholarship renewal. Failure to maintain a satisfactory average or standard of conduct in any semester will result in the automatic forfeiture of a scholarship.

Tech Transfer Pride Scholarship. The Tech Transfer Pride Scholarship is offered to eligible transfer students who have recently completed a significant amount of coursework at their community college and have maintained a 3.75 inclusive combined grade point average. Students must maintain full-time status and have a 3.25 overall combined grade point average at the end of their third semester at Tech for scholarship renewal. Failure to maintain a satisfactory average or standard of conduct in any semester will result in the automatic forfeiture of a scholarship. For more information on university scholarships, visit www.tntech.edu/scholarships or contact the Scholarship Office at 931-372-6159 or scholarships@tntech.edu.

Army Reserve Officers' Training Corps Scholarship. Students enrolled at Tennessee Technological University are eligible to apply for two-and three-year ARMY ROTC scholarships. These scholarships vary depending on availability. Applicants are accepted from any four-year degree and two-year graduate degree program. Graduate applicants are limited to a two-year scholarship. Certain academic and physical standards must be met to apply. Recipients incur a military obligation. The Professor of Military Science administers the program at Tennessee Tech. The annual application cycle occurs September through October for the fall semester and January through February for the spring semester of each school year. Award benefits begin the semester following the award.

Tuition Assistance for Guardsmen. Contact your local recruiter.

INTERCOLLEGIATE ATHLETICS

The office of the Director of Athletics is located at the Hooper Eblen Center, the arena where many intercollegiate athletic contests occur. Tennessee Tech is a member of the National Collegiate Athletic Association (NCAA) and the Ohio Valley Conference (OVC). We participate at the NCAA Division I level in fifteen sports and in the NCAA Football Championship Subdivision in football. Tennessee Tech sponsors nine women's intercollegiate athletic teams (basketball, cross country, indoor & outdoor track, golf, soccer, softball, tennis, and volleyball), six men's teams (baseball, basketball, cross country,

football, golf, and tennis), and one co-ed team (rifle). In addition to intercollegiate sports contests, concerts and other entertainment are occasionally hosted by the Department of Athletics. In order to participate in varsity athletics, student athletes must satisfy all academic requirements of the University and must make satisfactory progress toward their degrees, as specified by the NCAA and OVC. The policies and activities of the varsity teams are regulated by the Tennessee Tech Athletics Committee, which is composed of students, faculty, and administrative staff. Intercollegiate varsity athletic interests are promoted by the Tennessee Tech Athletic Association. Each fulltime student receives complimentary admission to all regularly scheduled intercollegiate athletic home games. Since 1925, Tech athletic teams have been nicknamed the "Golden Eagles."

INTERNATIONAL EDUCATION

The TTU Office of International Education is responsible for international undergraduate admissions and provides international students and scholars with immigration services and community programming. In addition, the office staff coordinate study abroad programs for all TTU students.

TTU WOMEN'S CENTER

The TTU Women's Center exists to empower women in the student body, on the faculty, and on the staff of the University community through the dissemination of information, education and consultation. The Center's mission includes collaborating with other functional areas of the University to provide a range of services that will enhance the lives of women and men in the University community. The TTU Women's Center is located in Pennebaker Hall, Room 203. The director may be reached by writing Tennessee Tech, Box 5216, or by phoning (931) 372-3850.

UNDERGRADUATE PROGRAMS

College of Graduate Studies

Degree Programs. The Tennessee State Board of Education authorized the organization of a graduate program at Tennessee Technological University in May 1958. The first courses for graduate credit were offered in Summer 1958, and the first graduate degrees were conferred the following summer.

In support of the objectives of graduate study, programs leading to advanced degrees are available in the various colleges as outlined below:

College of Arts and Sciences

Master of Arts:

English

Master of Science:

Biology

Chemistry

Mathematics

Doctor of Philosophy

Exceptional Learning

Applied Behavior Analysis

Literacy

Programming Planning and Evaluation

STEM Education

College of Business

Master of Business Administration:

Accounting

Finance

General Management

Human Resource Management

International Business

Management Information Systems

College of Engineering

Master of Science:

Chemical Engineering

Civil Engineering

Computer Science

Computer Software and Scientific

Applications

Internet-Based Computing

Electrical and Computer Engineering

Mechanical Engineering

Doctor of Philosophy:

Engineering

Specialization areas:

Chemical Engineering

Civil Engineering

Computer Science

Electrical Engineering

Mechanical Engineering

College of Education

Master of Arts and Specialist in Education:

Curriculum and Instruction:

Curriculum

Early Childhood Education

Educational Technology

Elementary Education

Library Science

Music (M.A. only)

Reading

Secondary Education

Special Education

STEM Education

Instructional Leadership

Educational Psychology & Counselor Education:

Agency Counseling (Ed.S. only)

Case Management and Supervision (M.A. only)

Educational Psychology

Mental Health Counseling (M.A. only)

School Counseling

School Psychology

Exercise Science, Physical Education and Wellness (M.A. only)

Adapted Physical Education

Elementary and Middle School Physical

Education

Lifetime Wellness

Sport Management

College of Interdisciplinary Studies

Professional Science Masters

Environmental Informatics

Manufacturing Sustainability

Doctor of Philosophy:

Environmental Sciences

Biology

Chemistry

TN eCampus Programs

Advanced Studies in Teaching and Learning (M.Ed.)

Master of Science in Nursing (M.S.N.)

Advanced Practice

Nursing Administration

Nursing Education

Nursing Informatics

Master of Professional Studies (M.P.S.)

Healthcare Administration

Human Resources Leadership

Strategic Leadership

Training and Development

Admission to Graduate Studies. Applications for admission and readmission to Graduate Studies should be made to the College of Graduate Studies by the deadline published.

Each application must be supported by official transcripts of undergraduate and graduate credit, three recommendations from persons acquainted with the applicant's scholastic and professional accomplishments (Master of Business Administration requires one recommendation), student health form and official scores made on the following: (1) all applicants into programs in the College of Arts and Sciences, the Ph.D. program in the College of Education, the programs of Counseling and Psychology, and all programs in the College of Engineering must submit scores on the General Test of the Graduate Record Examination; (2) all applicants for admission into the Master of Business Administration and Master of Accountancy programs must submit scores on either the Graduate Management Admission Test or the General Test of the Graduate Record Examination; and (3) all Master's and Ed.S. applicants into the College of Education (excluding programs in Counseling and Psychology) must submit a recent score on the Miller Analogies Test or Graduate Record Examination. Admission to graduate study is on a merit basis and is limited to applicants who hold an earned bachelor's or master's degree from an accredited institution whose undergraduate or graduate work is, in the opinion of the College of Graduate Studies and the chairperson of the department in which the applicant proposes to study, of sufficient quality and scope to indicate high promise of success in graduate study. The University reserves the right to require additional information and/or performance when it appears that such would be appropriate to the accomplishment of degree requirements or the fulfillment of accreditation objectives.

International students having adequate preparation for graduate study may apply for admission, but applications should be filed at least six months prior to the anticipated date of enrollment. Additionally, all students from non-English speaking countries must submit proof of adequate training and ability in the use of English as evidenced by an acceptable score on the TOEFL (Test of English as a Foreign Language), IELTS (International English Language Testing System), PTE-Academic, FLS International Language Center, ELS, TOEIC, CEFR, or SLEP. International students who wish to transfer from another university to Tennessee Tech must submit the usual materials required for initial admission; additionally, each applicant must furnish official transcripts from the current institution as well as evidence of full financial responsibility, and photocopies of visa and passport expiration dates, I-94, and I-20 identification. Additional information concerning admission, degree requirements, and other aspects of graduate study at Tennessee Tech is found in the Graduate Catalog available online at www.tntech.edu/gcatalog/ or at the Graduate Studies website www.tntech.edu/graduatestudies/.

Students who are interested in graduate study in one of the aforementioned academic areas are invited to contact the College of Graduate Studies.

Seniors Taking Graduate Courses. Under conditions established by the Graduate Studies Executive Committee, certain seniors may be permitted to take graduate courses for graduate or undergraduate credit. These conditions have been determined in keeping with standards suggested by various accrediting agencies. Seniors who have an interest in taking graduate courses may obtain additional information from personnel in the College of Graduate Studies, Derryberry Hall. Seniors may not register for any graduate courses (numbered 5000 and above) without obtaining prior written permission from the College of Graduate Studies. Students who have not achieved senior classification are not permitted to take graduate courses. Students in the *Second Bachelor Degree or Teacher Certification* category may not register for graduate courses without obtaining prior permission from the College of Graduate Studies.

COLLEGE OF AGRICULTURE AND HUMAN ECOLOGY

Darron Smith, Dean
Dennis Duncan, Director of Agriculture
Melinda Anderson, Director of Human Ecology
Chris Kohl, Director, Student Success Center

Schools and Programs

School of Agriculture
School of Human Ecology
Coorts Arboretum
Hyder-Burks Agriculture Pavilion
Tech Farm Nursery Research & Service Center
Tennessee Early Childhood Training Alliance

Mission and Purposes. The mission of the College of Agriculture and Human Ecology is to promote a strong academic environment for its students and to preserve and expand knowledge in the fields of agriculture and human ecology, knowledge contained in its library and in the minds and intellects of its faculty. The College is equally supportive of the education of men, women, and minorities. Teaching, research, and public service activities form a foundation for College goals of:

- Providing a baccalaureate degree in the fields of agriculture and human ecology that will prepare students for entry and advancement in those fields.
- Providing curricula that will prepare agriculture and human ecology students for entry and advancement in graduate/professional programs.
- Providing educational experiences that will enhance agriculture and human ecology student leadership and social development.
- Conducting scholarly and public service activities that will enhance the fields of agriculture and human ecology.

Organization. The College of Agriculture and Human Ecology consists of two schools offering curricula leading to the bachelor's degree: (1) the School of Agriculture and (2) the School of Human Ecology.

Requirements for Degree. Curricula in the School of Agriculture and the School of Human Ecology lead to the Bachelor of Science degrees in Agriculture and Human Ecology respectively. The student must complete the curriculum for the major subject chosen and must comply with the university requirements for a degree.

School of Agriculture

Duncan Director; Professors Airhart, Bagley, Best, Foster, Greene; Associate Professor Fennewald, Morris; Assistant Professors Baier, Leckie

The curricula of the School of Agriculture are designed to prepare students for careers in the increasingly complex and scientific field of agriculture. Following completion of the B.S. degree, students may also choose to enter graduate study.

The School of Agriculture offers the following curricula and undergraduate degree:

Major	Areas of Concentration	Degree
Agriculture	Agribusiness Management Agricultural Communication Agricultural Education Agricultural Engineering Technology Agricultural Science & Management Agritourism Agronomy & Soils Animal & Pre-Veterinary Science	BS

Option 1: Animal Science
Option 2: Pre-Veterinary Sci.
Environmental Agriscience
Horticulture
Nursery & Landscape Management
Turfgrass Management

Agribusiness Management

Agribusiness Management provides training in economics and business management principles related to production, distribution, and consumption of agricultural goods and services. Graduates enter careers in government agencies, commodity trading, communications, public relations, finance, marketing, sales, and agribusiness management.

Agricultural Communications

Agricultural Communications Concentration prepares students for careers in agricultural communications and related fields. This curriculum provides an opportunity for students to combine technical agriculture with Agricultural Education, Journalism, Professional Communications, and Business Communications. Possible career areas include: agricultural information agencies; newspaper writing and editing; magazine feature writing and editing; agricultural related publications; public relations; advertising and sales; environmental reporting; and Agricultural Extension.

Agricultural Education

Agricultural Education prepares students for careers as high school agricultural education instructors, Agricultural Extension agents, and other related fields. Students learn to evaluate community needs and how to implement an educational program.

Agricultural Engineering Technology

Agricultural Engineering Technology provides basic training in engineering and agriculture. Students are prepared to solve problems related to agricultural production and processing systems and the management and conservation of agricultural land and water resources. Graduates pursue careers in food and fiber handling and processing facilities, farm machinery sales and service, management of large mechanized farms, and other sectors of Agricultural Engineering Technology.

Agritourism

Agritourism provides a cutting-edge option for students looking to enter the agricultural industry or return to a home operation and increase the viability of maintaining their cultural heritage. Graduates enter careers as Agritourism enterprise managers, entrepreneurs in their own enterprise, non-formal educators serving as developers of educational activities and programs for Agritourism sites. In addition, some of our students will seek entrance into graduate school to open even more doors through Cooperative Extension and the USDA.

Agronomy & Soils

Agronomy and Soils students study the complex processes of plants and composition of soil in which they grow. Areas of interest are crop science and soil science. Graduates pursue careers as agronomists; Extension agents; Natural Resources Conservation Service employees; and herbicide, fertilizer, and seed industry research and development specialists and sales representatives.

Animal & Pre-Veterinary Science

Animal Science deals with all phases of the livestock and dairy industry. Areas emphasized are nutrition, physiology, genetics, management technology, quality control and environmental regulations. Graduates enter careers in farm management, Extension Service, food quality control, governmental health agencies, farm credit institutions, and agricultural sales and management.

Environmental Agriscience

Environmental Agriscience is an environmentally oriented curriculum that offers courses in soils, geology, ecology, hydrology, and biology in an environmental context in addition to traditional agriculture courses. Graduates in the Environmental Agriscience concentration could work in fields such as water quality, reclamation, and developing environmental impact statements. Environmental consulting firms, the EPA, state health departments, the Natural Resources Conservation Service, and the Agricultural Extension Service are a few examples of possible employers.

Horticulture

Horticulture combines training in the biological and physical sciences with sound plant cultural practices. Training is offered in plant identification, production and handling of greenhouse and nursery crops, and landscape design and management. Graduates enter careers in management, production, processing, sales, education, and governmental agencies related to the green industries.

Nursery & Landscape Management

Nursery and Landscape Management provides students an opportunity to combine agribusiness management training and horticulture training for managerial positions in the nursery and landscaping industries.

Turfgrass Management Concentration

Turfgrass Management provides basic training in the science and culture of managing turfgrasses and the economics and business management principles related to the turf industry. Graduates are prepared to pursue careers in management of athletic turf, golf courses, municipal, industrial, home lawns, and other types of turf and related business.

School of Human Ecology

Professor Anderson, Director; Professors Shipley; Assistant Professors Chitiyo, Ramsey, Upole, Sisk; Lecturers Hutson, Paradis, Yi

The discipline of Human Ecology, also known as Family and Consumer Sciences, exists to enhance the quality of life for individuals, families and communities. The body of knowledge incorporates the integrative elements of human ecosystems and life course development. Inclusion of core concepts such as basic human needs, individual well-being, family strengths and community vitality prepare graduates to work with individuals and families using a holistic perspective. Understanding the influences both external and internal environments have on quality of life is the foundation of the discipline. Graduates find employment in a variety of settings including: health care, education, management, design, marketing/retailing, and human service professions. Programs within the School are Accredited by:

- American Association of Family and Consumer Sciences
- Accreditation Council for Education in Nutrition and Dietetics
- Council for the Accreditation of Educator Preparation

Programs within the School are Approved by:

- Association of Child Life Professionals
- National Council on Family Relations

The School of Human Ecology, Child Development and Family Relations (CDFR) concentration has met the standards and criteria required for the Provisional Certified Family Life Educator (CFLE) designation from the National Council on Family Relations (NCFR).

Beginning in Fall 2016, students who graduate from the School of Human Ecology CDFR curriculum (and have met all CFLE course requirements) now qualify to complete an abbreviated CFLE application process.

This program approval does not imply accreditation, but recognizes the inclusion of relevant course work for each of the ten family life content areas needed for the Provisional Certified Family Life Educator designation.

Major	Areas of Concentration
Human Ecology	Child Development & Family Relations Child Life

Major	Family & Consumer Sciences Education Areas of Concentration Food Systems Administration Housing & Design Merchandising & Design Nutrition & Dietetics
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Child Development and Family Relations

The Child Development and Family Relations concentration offers a holistic, ecological and integrative perspective on children and families. Course work provides in-depth knowledge to prepare graduates for careers working with people across the lifespan in a variety of human service settings including: government agencies, children's services, cooperative extension and others.

Child Life

The Child Life program, a gateway to the Certified Child Life Specialist (CCLS) credential, is coordinated with the Association of Child Life Professionals programmatic and educational standards for the child life practitioner. Application to the Child Life program at Tennessee Technological University is required and should be made in the second semester of sophomore year after completing HEC 2250 and while enrolled in HEC 2550.

The components of eligibility to sit for the Child Life Professional Certification Examination are:

1. Baccalaureate degree
2. Complete 10 college courses in specific content areas
3. Including child life content taught by a Certified Child Life Specialist
4. Child Life Clinical Internship (600 hours under the direct supervision of a Certified Child Life Specialist)

For more details regarding eligibility requirements, please see the Association of Child Life Professional's website at childlife.org

Family and Consumer Sciences Education

Family and Consumer Sciences Education prepares students for careers as FACS teachers in middle and high schools, as USDA Cooperative Extension Agents and for other human services professions. Licensure is available and required only for teaching professions.

Food Systems Administration

The School of Human Ecology offers two nutrition-related concentrations. Nutrition and Dietetics is the accredited dietetic curriculum which prepares students to be eligible to enter a dietetic internship program: part of the process to becoming a Registered Dietitian/Nutritionist (RDN). Registered Dietitian/Nutritionists work in health care, community health agencies, sports nutrition, research and food management. The Food Systems Administration curriculum prepares students for careers in food service and production, food research, food science, and other management opportunities within the food industry.

Housing and Design

Housing and Design focuses on adapting space to meet the psychosocial and physical needs of people in residential and commercial environments. Graduates pursue careers in interior space planning, design of the built environment, historic preservation, real estate, and furnishings and sales.

Merchandising and Design

Merchandising and Design curriculum focuses on the design, production, distribution and selection of consumer products. Career opportunities include positions in management, merchandise buyer, sales representative, shopper/stylist, fashion coordinator, textile researcher, fashion designer and many others.

Nutrition and Dietetics

The School of Human Ecology offers two nutrition-related concentrations. Nutrition and Dietetics is the accredited dietetic curriculum which prepares students to be eligible to enter a dietetic internship program: part of the process to becoming a Registered Dietitian/Nutritionist (RDN). Registered Dietitian/Nutritionists work in health care, community health agencies, sports nutrition, research and food management. The Food Systems Administration curriculum prepares students for careers in food service and production, food research, food science, and other management opportunities within the food industry.

COLLEGE OF ARTS AND SCIENCES

Paul B. Semmes, Dean
Kurt Eisen, Associate Dean
Departments and Programs

Student Success Center
Department of Biology
Department of Chemistry
Department of Communication
Department of Earth Sciences
Department of English

Department of Foreign Languages
Department of History
Department of Mathematics
Department of Physics
Department of Sociology and Political Science
Interdisciplinary

Mission and Scope. The College of Arts & Sciences provides a liberal arts education for all TTU students, strong major programs in more than thirty areas of study, high-quality foundational courses for students in programs outside the College, and new knowledge through faculty and student research. In pursuing this mission, the College emphasizes the skills and perspectives vital to lifelong education and decision-making in a democracy. These include critical and contextual thinking, effective communication, active learning, and proficiency with technology. Across the ten departments, many courses address one or more of the following major issues: environmental problems, the complex relations of science and society, and the coexistence of differing cultural or ethnic groups within the U.S. and around the globe.

General Requirements for a Baccalaureate Degree in the College of Arts and Sciences. A student must satisfy the general university requirements for a baccalaureate degree. The departmental chairperson, or a faculty member designated by the chairperson, serves as the student's academic advisor.

Minor in Arts and Sciences. A minor for Arts and Sciences students requires the completion of 15 semester hours, including 6 upper-division hours, in a coherent program of study. The criterion of coherence may be met in either of two ways: (1) by following the minor curriculum prescribed by any department or college at TTU, so long as it includes at least 6 upper-division hours; (2) if such a minor curriculum is not available in the chosen department or college, by taking the 15 semester hours, including 6 at the upper division, in a single discipline—i.e., normally, courses with the same course prefix, but students should check with the department offering the minor before assuming this. Exception: A minor in physics will consist of at least 15 hours of coursework including PHYS 2110, PHYS 2120, PHYS 2420, PHYS 2920 and one upper division physics course. Approved interdisciplinary minors in the College of Arts and Sciences are:

Chemistry Minor. A minor in Chemistry will consist of 18-20 hours including CHEM 3010-CHEM 3020 and CHEM 3410 plus two additional courses chosen from CHEM 2010, CHEM 3500, CHEM 3510, CHEM 3520, CHEM 4520 (5520), CHEM 4610 (5610), CHEM 4620 (5620). The minimum average GPA in these courses must be 2.0.

Environmental Studies Minor. Home: Department of Earth Sciences. Advisor: Dr. Larry Knox, Kittrell Hall 201 or 103 (lknox@tntech.edu). A minor in Environmental Studies will consist of at least 15 hours of coursework, with a minimum of 6 upper-division hours, including the following:(a) HIST 2900 Environmental History; (b) One of the following: SOC 3600 - Environmental Sociology or AGBE 4120 (5120) ; (c) 9 additional semester hours chosen from the course list below, including at least: one course at the 3000-4000 level and two of the following areas of study: Agriculture, Biology, Chemistry, Geography, Geology, and Sociology (note: WFS is considered to be Biology).

AGET 3110, AGRN 1100, AGRN 1110, AGRN 3230, AGRN 4220 (5220), AGRN 4230 (5230), BIOL 3120 **or**, BIOL 3130, **or** WFS 3130, BIOL 4130 (5130), BIOL 4610 (5610),BIOL 4840 (5840), ESS 3710, CHEM 4710 (5710), ENGL 4931 (5931), GEOG 1010, GEOG 3330,GEOL 4100, GEOL 4150 (5150), GEOL 4410 (5410), GEOL 4650 (5650), GEOL 4711 (5711),SOC 3600, WFS 4500 (5500).

Note: Except for Biology majors, students who did not take BIOL 1010-BIOL 1020 under "Preparation" (above) must take BIOL 3120 or BIOL 3130/WFS 3130 as part of the "9 additional hours."

Professional Communication Minor. Home: Department of English. Advisor: Dr. Kristin Pickering, Henderson Hall 312A (kpickering@tntech.edu). A minor in Professional Communication will consist of PC or COMM 2025. At least 12

additional hours of coursework from the following: PC 3250, PC 3700, PC 3750, PC 4850 (5850), PC 4940 (5940), PC 4970 (5970), PC 4990.

Communication Minor. Home: Department of Communication. Advisor: Dr. Halina Ablamowicz, Henderson Hall 102 (hablamowicz@tntech.edu). A minor in Communication will consist of: COMM 2025, or PC 2500. The minor will consist of 4 additional courses offered by the Communication Studies Program, two of the courses must be upper division (3000 and above). JOUR 2100 and JOUR 2200 can be applied to the minor in speech communication. Students who complete a minor in Communication will receive a certificate from the Communication Studies Division of the Communication Department.

Women's and Gender Studies Minor. Home: Department of History. Advisor: Dr. Paula Hinton, Henderson Hall 112 (phinton@tntech.edu) A minor in Women and Gender Studies requires completion of WGS 2010 and a minimum of 12 additional credit hours of course work (including 6 upper division hours) in approved courses. A minimum of 6 credit hours must be chosen from the following core courses: ENGL 4731 (5731), HIST 4350-4359 (5350), HIST 4370 (5370), POLS 3400, SOC 2200. The remaining 6 credit hours may include additional core courses listed above or approved courses that contain a significant focus on women and/or gender, or in which a student may individually contract with course instructor to focus on women and/or gender issues. These courses include but are not limited to the following: HIST 4360-4369 (5360), HIST 4440-4449 (5440), POLS 3200, POLS 3800, POLS 4610, SOC 2630, SOC 2840, SOC 4210 (5210), SOC 4610 (5610), HON 4010; and 4900 in various disciplines

Note: No student will receive credit toward both the major and minor from the same course. Student contracts must be approved by the instructor before the last day to add classes.

College of Arts and Sciences
Undergraduate Degree Programs

Department	Major	Concentrations within Major	Degree
Biology	Biology	Biology Cellular & Molecular Biology Environmental Biology Health Sciences	Bachelor of Science
	Wildlife & Fisheries Science	Conservation Fisheries Science Wildlife Science	Bachelor of Science
Chemistry	Chemistry	Applied Chemistry	Bachelor of Science
		Business Chemistry Environmental Chemistry Forensic Chemistry Health Science Chemistry Industrial Chemistry Chemistry	
Communication	Communication	Biochemistry Pure Chemistry	Bachelor of Science
		Communication Studies Journalism News Editorial Public Relations	
Earth Sciences	Geosciences	Environmental Geology Geographic Information Systems Geography Geology	Bachelor of Science
English	English	Creative Writing Literature Professional & Technical Communication	Bachelor of Arts

		Rhetoric & Language Theatre Performance Technical	
Foreign Language	Foreign Language	French German Spanish	Bachelor of Arts
History	History	History	Bachelor of Arts
Mathematics	Mathematics	Mathematics	Bachelor of Science
Physics	Physics	Traditional Physics Applied Physics	Bachelor of Science
Sociology & Political Science	Political Science	Political Science Legal Studies	Bachelor of Science
	Sociology	Sociology Criminology & Criminal Justice Social Work	Bachelor of Science
Interdisciplinary Pre-Professional Non-Degree	International Business & Cultures* Pre-Dental Hygiene Pre-Dentistry Pre-Health Information Management Pre-Medical Technology Pre-Medicine Pre-Occupational Therapy Pre-Optometry Pre-Pharmacy Pre-Physical Therapy Pre-Physician Assistant		Bachelor of Science

*The International Business and Cultures curriculum is shared by the Colleges of Business and Arts and Sciences. Jointly administered by the department of Economics, Finance, and Marketing (Business) and the Department of Foreign Languages (Arts and Sciences), it leads to a joint B.S. degree, not a separate degree in either college.

Interdepartmental Programs and Activities. All College of Arts and Sciences programs cross over departmental lines to bring in appropriate experiences from other disciplines. Some programs, however, require an unusually broad set of activities to accomplish their goals. The *B.S. in International Business and Cultures* uses the resources of two colleges in preparing students to solve complex problems in international commerce. The *pre-professional programs* draw from a wide spectrum of sciences, humanities, and social sciences as they prepare students for careers in medicine, law, and the allied health sciences. In addition to department-based minor programs, students can choose from several interdisciplinary minors: Women and Gender Studies, Environmental Studies, Education or Business. Finally, the Internship in Technology and Community Development adds an applied technology credential to the student's major.

Pre-Professional Programs. The College prepares students for professional training in law, medicine, dentistry, and other health sciences. All the courses required or recommended for pre-professionals are annually revised and updated to make certain students are well-prepared and are competitive on required aptitude tests (DAT, LSAT, MCAT, OAT, PCAT, VCAT). Among the many opportunities for active learning related to pre-professional studies are: the mock-trial team, speech and debate teams, internships and work experiences, and pre-professional student groups, such as the Chem-Med Club, which provide trips to professional schools and interactions with other pre-professional students and with prominent practitioners in the various fields. Should a student later decide not to pursue entrance to a professional school, TTU offers a wide range of degree options that capitalize on the pre-professional work already accomplished.

<https://www.tntech.edu/cas/healthsciences/>

Pre-Law. Pre-law students have no fixed requirements, but law schools recommend they major in a discipline known for its rigor in analytical thinking and communication. Pre-law students are advised by a team of professors—in Business, English, History, Political Science, and Sociology—led by Associate Professor Lori Maxwell (Immaxwell@tntech.edu) of the Sociology and Political Science Department.

Pre-Professional Health Sciences. Students who wish to pursue healthcare careers in fields such as medicine, dentistry, and pharmacy follow a General Curriculum Track with a Pre-Professional Health Sciences Focus for the first two years at TTU. The pre-medicine, pre-dentistry, pre-pharmacy, pre-optometry, pre-physician assistant, pre-physical therapy, pre-occupational therapy, pre-dental hygiene, pre-medical technology, and pre-health information management students must take certain courses required by the professional school while at TTU, but they can do so while pursuing almost any major. Students are advised to declare their BA or BS degree-granting major prior to earning 60 credits. Pre-veterinary students are advised in the School of Agriculture.

Internship in Technology and Community Development. This internship program is designed for the student who is completing a bachelor's degree program that does not include a significant application of current computer technologies to "real-world" problems and needs. During three of the student's last four semesters in a major program in the College of Arts and Sciences at Tennessee Tech, he or she will register for CAS 4910, CAS 4920, and CAS 4930, in that order, for one semester each, and not simultaneously. A certificate is awarded upon completion of all three courses, each with a passing grade.

Graduate Programs. Graduate curricula lead to the Master of Science degree in biology, chemistry, and mathematics, the Master of Arts degree in English, and the Doctor of Philosophy degree in Environmental Sciences. For details, consult the TTU Graduate Studies office.

Teacher Licensure. Students may major in the College of Arts and Sciences and work towards teacher licensure, although in some cases they may be required to earn more than 120 hours. For more information consult the College of Arts and Sciences web page: www.tntech.edu/cas/.

Student Success Center

Edith Duvier, Director/Advisor

Advisors: Deborah Allen, Samantha Bates, Angela Clark, Jennifer Dyer, Whitney Foust

The Student Success Center serves undergraduate freshmen and sophomore students within the College of Arts and Sciences as well as students who are in General Curriculum, General Health Studies, and General Pre-Law. Advisors within the SSC assist Arts and Sciences students to navigate their freshmen and sophomore years within their chosen major and comply with University requirements. In addition, the SSC acts as a resource for students and faculty who have questions or who need assistance as an upper-classmen.

The SSC is especially committed to guiding students as they progress in their education by providing individual academic advising. Students will receive assistance with selecting general education courses, basic major requirements, choosing appropriate degree programs and career paths, and help in solving problems that could cause them to be unsuccessful academically. The following majors are advised in the College of Arts and Sciences Student Success Center: Biology/Wildlife Fisheries, Communication, English, History, Geosciences, General Curriculum, General Health Studies, General Pre-law, International Business and Cultures, Mathematics, Political Sciences, Sociology and Special Non-degree. (Departments within the College of Arts and Sciences not listed here are advised by faculty within the Departments).

General Curriculum (GECU) is for students uncertain about their career goals or who want to explore a new major. Students will receive advising and guidance aimed at helping students make an educated decision about their future careers. Students who meet departmental qualifications may transfer to an academic department upon request but can stay until they have earned 60 credit hours.

General Health Studies (GHS) is for students who plan to enter nursing or one of the pre-professional fields. Students will receive career counseling and begin fulfilling their general education requirements while preparing for their chosen education and career.

General Pre-Law (GEPL) is for students who are planning on entering law school after graduation from the University. Advisors aid students in selecting a major that will prepare them for their future education and careers. Students are also encouraged to join the Pre-Law Club where they will meet other students with similar interests in law.

GENERAL CURRICULUM (GECU) AND GENERAL PRE-LAW (GEPL)

(The following first-year curriculum is recommended for students who are in the process of selecting a specific major.)

Freshman Year

ENGL 1010 - English Composition I Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

Math Credit: 3-5. ¹

Natural Science Credit: 8.²

Social/Behavioral Science Credit: 6. ³

Elective Credit: 6.⁴

UNIV 1020 - First-Year Connections Credit: 1.

Total: 30

Note:

¹ Course selected in consultation with academic advisor.

² Select from the following: ASTR 1010, ASTR 1020; BIOL 1010, BIOL 1020; BIOL 1113; BIOL 1123, BIOL 2310; BIOL 2010, BIOL 2020; CHEM 1010, CHEM 1020; CHEM 1110, CHEM 1120; GEOL 1040, GEOL 1045; PHYS 2010, PHYS 2020; PHYS 2110, PHYS 2120. Students should confer with an academic advisor regarding the specific course selection.

³ Select two Social/Behavioral Science courses from the approved list.

⁴ Elective hours or Humanities/Fine Arts courses from the approved list.

General Health Studies (GHS). General Health Studies students may pick up an advising sheet for their particular area of interest in the Student Success Center in Henderson Hall, room 202.

Department of Biology

Associate Professor Brown, Chairperson; Professors Ballal, Combs, Cook, Hayslette, Kissell; Associate Professors Gunderson, Hurt, Krosnick, Murdock; Assistant Professors Beck, Carver, Cohen, Murray, Twing, Wheeler; Senior Instructor Pirkle; Lecturers Panter, Swallows

Courses in biology are for students who plan to pursue a major in the field of biology or wildlife and fisheries science; for students who plan to enter medical school, dental school, nursing school, or schools of medical technology; and for students in other fields of study who desire to develop a scientific attitude and to acquaint themselves with the phenomena of living organisms.

Students who plan to continue the study of biology on the graduate level or to prepare for industrial or governmental positions in the field should complete the Biology Curriculum. Curricula preparatory to the study of Medicine, Dentistry, and Medical Technology are given on preceding pages.

Tennessee Technological University is affiliated with the Gulf Coast Research Laboratory at Ocean Springs, Mississippi. This affiliation permits students to enroll in marine biology courses that would otherwise be unavailable this far inland. The Biology Department is unique in Tennessee for its Cooperative Fishery Research Unit supported jointly by the U.S. Geological Survey, the Tennessee Wildlife Resources Agency, and Tennessee Technological University. A primary function of the unit is to strengthen the graduate fisheries program; however, undergraduates interested in fisheries biology often find opportunities for valuable experience through association with Unit activities.

Department of Chemistry

Professor Boles Chairperson; Professors Glinski, Lisic, Zhang; Associate Professors J. Carrick, Crouse, Jiang, Swartling; Assistant Professors Callender, W. Carroll, Gichuhi, Hawkins, Rezsnyak, Zhan; Instructors A.M. Carrick, Coonce, Rust; Lecturers A. Carroll, Cashman

Within the major in Chemistry, the Department of Chemistry offers three concentrations leading to a Bachelor of Science Degree:

1. The Pure Chemistry concentration is intended to prepare students for both graduate school and a career as a professional chemist. This concentration exceeds the requirements for certification by the American Chemical Society.
2. The Applied Chemistry concentration is composed of the 6 options outlined below:
 - Business Chemistry – This option is intended for those who are more interested in the business side of the chemical industry or in a management career in a technical industry. The non-chemistry component of this option includes most, if not all, of the coursework necessary to enter the +1 MBA program offered by the TTU College of Business.
 - Environmental Chemistry – Chemistry plays a central role in all environmental issues. No student can be considered prepared to contribute to this field without a solid background in chemistry. This option incorporates a significant amount of supporting coursework in contributing sciences, such as biology, agriculture, and geology.
 - Forensic Chemistry – Forensic science is an interdisciplinary field incorporating aspects of chemistry, biology, and physics. While it is certainly an area of current popular interest, it has long been a career pathway for chemistry graduates, whose curriculum fits these demands particularly well. This option combines the essential elements of chemistry with supporting coursework in biology and criminal justice.
 - Health Sciences Chemistry - This option provides a four-year content degree in chemistry for students who have pursued non-degree curricula in pre-medicine, pre-dentistry, pre-pharmacy, pre-optometry and other related pre-health programs. Supporting coursework in biology is chosen from those courses required or encouraged by professional schools.
 - Industrial Chemistry – This option is intended for students who wish to pursue a technical career in a chemistry-related industry. Many companies seek employees with a chemical background but do not need the rigorous training found in the ACS Chemistry concentration. An integral part of this program is a minimum of one year of cooperative employment experience.
 - Chemistry – This option maintains the flexibility of the current program, allowing adaptation to new areas of interest as they develop.
3. The Biochemistry concentration is intended to serve pre-professional students and those who wish to pursue graduate work at the chemistry-biology interface.

A.C.S. certification is also possible in the Applied and Biochemistry concentrations by taking a number of additional courses beyond those listed in the catalog curricula.

Pre-Professional Health Sciences Programs focus within General Curriculum. Pre-Professional Health Sciences Programs within General Curriculum in the College of Arts and Sciences are designed to satisfy minimum requirements for admission to professional schools. The majority of students enroll in degree programs such as biology, chemistry, engineering, etc., while also taking courses to complete the minimum professional school requirements. Students are advised to declare their major prior to earning 60 credits. Students may elect to take additional coursework in biology, chemistry, psychology, and the humanities, etc., to become a more competitive applicant to professional school.

Department of Communication

Professor Wilson, Chairperson; Professors Ablamowicz, Stewart, Witcher; Associate Professor Ding; Assistant Professor Christen; Instructor Metz; Lecturers Mestayer, Seiber

Communication. With concentrations in Journalism and Communication Studies, the Communication major produces graduates who understand the powerful role of communication in all aspects of society. The Journalism curriculum prepares students for a variety of employment opportunities in the mass communication and media professions, primarily in the print media and public relations as well as corporate communication. The program stresses practical experience. The student newspaper, yearbook, magazine, and radio station, and the regional PBS-affiliate television station are integrated with class work, and students are encouraged to participate in the internship or co-op program. The concentration in Communication Studies fosters the understanding of the process and practice of communication among individuals, groups, organizations, and cultures. Emphasis is on effective and ethical communication skills for success in virtually all kinds of situations. Students may participate in speech and debate team activities. Upon graduation they are

ready to begin careers in business, government, law, education, politics, social and human services, international relations and negotiations, or further study on the graduate level.

Department of Earth Sciences

Professor Harrison, Chairperson; Professors Hart, Leimer, Li; Associate Professor Asante, Wolak

The mission of the Department of Earth Sciences is threefold:

1. To provide a robust undergraduate learning and research experience for geoscience students.
2. To demonstrate the importance of the geosciences to society.
3. To promote faculty research, scholarly activity and interdisciplinary collaboration.

Our department mission supports the overall missions of the University and the College of Arts and Sciences.

Department of English

Professor Pelton, Chairperson; Professors Baker, Burdick, Creter, Eisen (Associate Dean), Kash, Laird, McQuail, Null, O'Rourke, Pickering, Saya; Associate Professors Bounds, Williams; Assistant Professors Deiter, Ductan, Hunt, Ramler; Instructors Fisk, Harris, Rideout, Robinson, Shealy, Smith; Lecturers Henry, Kean, Moynihan

English. The English language and literature curriculum is designed to improve students' skills in writing, critical reading, and thinking; to enrich their cultural experience; and to prepare them for all professions requiring a high level of expression, imagination, and intellectual activity, including creative writing, editing, teaching, law, politics, and management.

The English major includes four concentrations: Literature, Writing, Professional Communication, and Dramatic Arts. All are designed to prepare students for careers that require the ability to think critically, write clearly and imaginatively, and understand diverse cultural contexts. The Literature curriculum develops strong critical and textual skills, and allows students to discover great literary works of the past and present, providing an excellent foundation for graduate study in English and related fields. In the Writing concentration students explore the arts of creative expression and rhetorical discourse, grounded in the study of literary traditions. The concentration in Professional Communication provides students with knowledge of skills, strategies, and theories necessary for employment in various workplace and technological settings, with options in Corporate Culture, Information Architecture, and Scientific and Technical Writing. In the Dramatic Arts program students focus on the literary traditions and performance arts that come together in the theatrical experience, preparing students for lifelong engagement with the arts while providing a solid foundation for graduate study or any profession that requires teamwork and creativity.

Department of Foreign Languages

Assistant Professor Sheehan, Interim Chairperson; Associate Professors Baker, Barnard, Groundland, Hays; Assistant Professors Olsen, Villalba; Instructor Martin

The foreign language curriculum is designed to give training in the language, literature, history, and customs of the peoples whose language is studied; to provide insights into the various means of organizing thought and reality by native speakers of the language; to enable students to understand the history and development of their own language; to provide the appropriate background for graduate studies in foreign languages; and to train students for various careers in which knowledge of other cultures and languages is needed. The Department offers two options. Option one is designed for students seeking a major in Foreign Languages with a concentration in French, German, or Spanish. Although a minor is not required, it is strongly recommended, especially for students who plan careers in teaching, government service, or other language related areas. Option 2 is designed for students who are concurrently earning a B.S. degree in engineering, engineering technology, computer science, mathematics or the physical or biological

sciences. The B.S. degree in International Business and Cultures combines economics, finance, management and marketing with language study.

Department of History

Professor Roberts, Chairperson; Professors Birdwell, Kharif, Laningham, Reagan, Webb; Associate Professors Dollar, Hinton, Smith; Assistant Professors Banton, Driggers, Frazier-Akehinmi, Propes; Instructor Davis, Hardy

The broad liberal arts curriculum of the History Department offers students a traditional education and preparation for many different professions. The content courses in history, for example, require students to think analytically, conduct research, and to communicate effectively both in written and oral forms. These are highly adaptable skills. The department assists each student by providing career guidance in a professional orientation course. One history professor advises pre-law students. The department provides excellent preparation for traditional graduate study, exemplified by TTU history majors who have earned advanced degrees at the outstanding graduate schools.

Department of Mathematics

Professor Mills, Chairperson; Professors R. Le Borne, Liu, Norden, Shibakov, D. Smith; Associate Professors Allen, Chambers, Hetzel, Kubiak, Machida, O'Connor, Veerapen; Assistant Professors Davis, Poudyal; Instructors Brachey, Elliott, Gandhi, Narimetla; Lecturers S. Brown, Daniels, W. Smith

The Department of Mathematics offers a well-balanced curriculum that can prepare students for immediate entry into the workforce or for further study at the graduate level. The curriculum provides students with a solid foundation in mathematics while offering flexibility in course selection. Students can prepare for many different careers in business, industry, education, and government. Among the alumni of the department are teachers, professors, lawyers, financial professionals, insurance industry executives, software engineers, as well as researchers and administrators in the defense industry.

Four optional concentrations of courses are available: Actuarial Mathematics, Applied Mathematics, Pure Mathematics, and Statistics. However, a student is not obligated to follow any of these four tracks. Faculty members who serve as academic advisors can help students develop a course of study appropriate for their individual career goals. Students interested in pursuing a Master's degree in mathematics can apply for entry into the BS/MS Mathematics Fast Track program and begin graduate mathematics coursework as an undergraduate student. Students planning to major in mathematics should complete 4 years of mathematics in high school, including algebra, geometry, trigonometry, and precalculus mathematics.

Department of Physics

Professor Robinson, Chairperson; Professors Ayik, Kozub, Murdock, Semmes (Dean), Shriner; Associate Professors Engelhardt, Kidd; Assistant Professors Holley, Rajabali; Lecturer Yeter-Aydeniz

The Physics Curriculum is designed to accommodate students with a variety of goals: those who wish to prepare for graduate study leading to advanced degrees in physics, those who plan to do graduate work in another field of science or engineering, and those who intend to seek employment immediately after receiving the baccalaureate degree. The basic science background and analytical thinking skills acquired by taking physics courses, combined with the broad knowledge base which characterizes all Arts and Sciences degree programs, has proved to be excellent preparation for a wide variety of careers. This includes endeavors previously viewed as "non-scientific," as virtually all walks of life have been engulfed by the current technological revolution.

Students preparing for graduate study in physics will normally follow the Option I program. The others will follow an approved Option II program which contains, in addition to a solid core of physics courses, a concentration of electives in

another area of science and/or engineering, such as electrical engineering, molecular biology, or computer science. Both programs lead to the Bachelor of Science degree in physics. Students in both options are eligible for summer employment in one of the research groups in the Department, for physics scholarships, and for participation in the Cooperative Education Program.

Department of Sociology and Political Science

Professor Maxwell Chairperson; Professors Gunter, Haynes, Norris, Raymondo; Associate Professors Anderson, Carlton, Stanger; Assistant Professors Harding, McGauvran, Navarro, Seiler, Wells; Instructors Brown, Cook

The Department of Sociology and Political Science offers a Bachelor of Science degree in Sociology; a concentration in Criminal Justice within the B.S. Sociology degree; a concentration in Social Work within the B.S. Sociology degree; undergraduate minors in Criminal Justice, Political Science, Philosophy, Anthropology, and Sociology; and a graduate minor in Sociology; undergraduate minors in Criminal Justice, Political Science, Philosophy, Anthropology, and Sociology; and a graduate minor in Sociology. (Note: In some cases, completing a minor will require transfer credit or on-line hours. Many of the courses in the department are restricted to declared majors.)

Political Science. A Bachelor of Science Degree in Political Science is offered with courses in each of the six main areas of specialization within the discipline: International Relations, Comparative Politics, Political Theory, American Government, State and Local Government, and Public Administration. A student who majors in Political Science at Tech is provided a broad liberal arts education with adequate specialization in the major and ample opportunity to take elective courses in related areas. Graduates are well-prepared for a number of options: graduate studies, law school, employment in government or private business.

Anthropology. Cultural Anthropology courses are offered when staff are available.

Sociology. The Sociology curriculum has three main purposes: (1) to aid students in understanding the roles of social forces and ideas in shaping modern society; (2) to provide a well-rounded education preparing the student for a wide range of occupations, particularly those which work directly with people or with categories or groups of people; and (3) to provide a sound academic background for graduate study in sociology or for such professions as law or the ministry.

Criminal Justice

Advisor: Dr. Mannle

The Criminal Justice Program offers a baccalaureate (B.S.) concentration, and a minor (15 hours) in criminal justice. The B.S. concentration involves a major in Sociology with a large proportion of course work in criminal justice. Those who complete the B.S. degree will have a sound foundation that prepares them to compete for positions in law enforcement, corrections and social service agencies, or for admission to law school.

Social Work. The Department of Sociology and Political Science offers a social work concentration for those students interested in a career in social work. Social work is a "helping profession" that assists people who face difficult problems. Some social workers do their work in family service agencies dealing with marriage, health and child welfare problems. Others work in a medical setting aiding patients and their relatives during a health crisis or a death. Still others work in the area of corrections assisting juvenile and adult law violators in rehabilitation. Social workers can also be found in public welfare agencies assisting the poor and disabled and in industry assisting employees with chemical abuse problems.

Philosophy. Philosophy courses are designed to help students acquire appreciation for the values and modes of reflection appropriate for the philosophical mind. They seek to stimulate interest in the ultimate human questions and to help students understand the proposed answers to those questions given by thinkers across the centuries. A baccalaureate minor is available and is especially appropriate for those interested in the humanities, the social sciences, and the professions.

Sociology Major. The Sociology Major at Tennessee Tech University leads to the Bachelor of Science Degree and includes three tracks: a Bachelor of Science in Sociology; a Bachelor of Science in Sociology with a concentration in criminal justice; and, a Bachelor of Science in Sociology with a concentration in social work.

Core of Required Courses Common to the Major (all three tracks): (27 hours)

SOC 1010 Introduction to Sociology
SOC 3100 Sociological Theory
SOC 3900 Introduction to Social Research
SOC 3910 Social Science Statistical Analysis
SOC 4920 (5920) Data Analysis and Management or
SOC 4930 (5930) Field Research Methods
Foreign Language (3) (Culture and Civilization courses do not qualify)
Electives in Social Sciences/Philosophy (9)

Students will take 9 hours of elective courses in the social sciences/philosophy consisting of any course that meets the Social/Behavioral Sciences General Education Requirement, and/or are from the disciplines of: anthropology, criminal justice, economics, geography, philosophy, political science, psychology, social work, or sociology.

Note: For the criminal justice concentration 3 hours of the electives in Social Sciences/Philosophy must be at the upper division level. The social work concentration meets the Social Sciences/Philosophy requirement by 9 hours embedded in the major (PSY 1030, PSY elective, and PHIL 2250).

Additional graduation requirements must be satisfied including but not limited to: a total of 120 semester hours; a total of 36 hours earned at the upper division (3000 or 4000 level courses); and, satisfactory completion of the general education requirements. Students are responsible for ensuring that they meet all requirements for graduation, and should consult with their academic advisor on a regular basis.

To complete the general sociology track:

In addition to the required core of 27 hours, students will complete an additional 21 hours of elective courses chosen from courses with a sociology, criminal justice, or social work prefix. **A minimum of 15 hours must be at the upper division level.**

Total hours in the major: 48.

Total hours of sociology/SW/CJ courses: 36-45.

Total hours required for graduation: 120.

To complete the criminal justice track:

The Criminal Justice Program offers a baccalaureate (B.S.) concentration, in criminal justice. The B.S. concentration involves a major in Sociology with a large proportion of course work in criminal justice.

Those who complete the B.S. degree will have a sound foundation that prepares them to compete for positions in law enforcement, corrections and social service agencies, or for admission to law school.

To complete the criminal justice track:

In addition to the required core of 27 hours, students will also be required to take:

CJ 2660 Criminology
CJ 2700 Introduction to Law Enforcement
CJ 2850 Criminal Law and Procedure
CJ 3610 Advanced Criminal Procedure
CJ 3650 Juvenile Delinquency
CJ 4660 (5660) Corrections
PHIL 1030 Introduction to Philosophy
POLS 1000 American Government

Students will complete an additional 12 hours of elective courses **at the upper division level** chosen from courses with a sociology, criminal justice, or social work prefix.

Total hours in the major: 63

Total hours of sociology/SW/CJ courses: 45-54.

Total hours required for graduation: 120.

To complete the social work track:

In addition to the required 27 hours, students will also be required to take:

SW 1800 Introduction to Social Work
SW 4100 (5100) Probation and Parole
SW 4120 (5120) Case Management
SW 4900 (5900) Internship
PHIL 2250 Introductory Ethics
POLS 1000 American Government

PSY 2010 General Psychology
PSY Additional Course or EDPY 2200 Educational Psychology (3)

Students will complete an additional 15 hours of elective courses chosen from courses with a sociology, criminal justice, or social work prefix. A **minimum of 9 hours** must be at the upper division level

Total hours in the major: 57.

Total hours of sociology/SW/CJ courses: 42-51.

Total hours required for graduation: 120.

Political Science Major. The Political Science major at Tennessee Tech University is part of a 120-hour degree program with at least 36 of the required 120 hours at the upper division level (courses numbered at the 3000 or 4000 level). The Political Science Major at Tennessee Tech University leads to the Bachelor of Science Degree and includes three tracks: a Bachelor of Science in Political Science; a Bachelor of Science in Political Science with a concentration in Legal Studies; and a Bachelor of Science in Political Science with a concentration in International Relations and Comparative Government.

The departmental requirements for the major consist of a total of 54 hours including:

POLS 1000 - American Government Credit 3.

POLS 1100 - Introduction to Political Science Credit 3.

Electives in Political Science Credit 24.

Foreign Language Credit 6. (At least 3 hours must be in a language course. The other 3 hours may be in language or in a culture related course.)

Computer skills—

DS 2810 - Computer Applications in Business Credit 3. or

CSC 1100 - Introduction to Computing Credit 3.

History—upper division course Credit 6.

Social Science, Criminal Justice, or Philosophy Electives Credit 6.

English—upper division course Credit 3.

Total departmental requirements for the major: 54 hrs.

COLLEGE OF BUSINESS

Thomas Payne, Dean
Jack Matson, Associate Dean
Nat Natarajan, Associate Dean

Departments and Programs

Student Success Center
Department of Accounting
Department of Decision Sciences and Management
Department of Economics, Finance and Marketing

Philosophy Objectives

The mission of the TTU College of Business is to excel in preparing students for business and business-related careers by blending scholarship and business experience in quality undergraduate programs and a case-oriented MBA program. The College's highest level of dedication is to its academic program exemplified by its focus on excellence in instruction, which is supported by a commitment to scholarly activity and intellectual contribution by the faculty and interaction with business and industry. We believe that teaching, research, and service are interdependent components of our mission. The following values guide us in striving for excellence in these three areas identified in order of relative emphasis: Teaching--We encourage our faculty to be sensitive to the educational needs of our students and to strive for excellence in teaching skills and content.

We seek to educate business leaders and potential leaders who are capable of making lasting contributions to business and society and who are also skilled in using an interdisciplinary approach to decision making in an increasingly global and technology-dependent business environment.

Intellectual Contributions--We encourage our faculty to engage primarily in applied research and scholarly activities that provide insights into business practice. We believe such scholarly activity should be a career-long endeavor of faculty engaged in educating current and future business leaders and that such activity enhances the effectiveness of classroom instruction and external interaction.

Service--All members of the business school faculty are encouraged to share their expertise to benefit external constituencies and to offer opportunities for students and faculty to apply their skills and knowledge. We believe these activities and involvement with business and government leaders significantly increase the abilities of faculty to deliver current information in the classroom and that they build important bridges between the academic community and our external constituencies.

We encourage professional and service endeavors that strengthen relationships with the broader academic community--activities within this University, interaction with other universities, and involvement in professional organizations. The College offers the B.S.B.A. degree that is structured on a firm base of liberal education courses, a core area of business studies, and an area of specialization. We seek to prepare students from culturally diverse backgrounds for careers in business. In the degree, the College seeks to:

- Develop an analytical approach to sound business decisions.
- Develop understanding and appreciation of the social, ethical, legal, political, and economic environment of business.
- Promote appreciation of the civic and social obligations of business managers.
- Develop understanding and appreciation of business in its international context.
- Equip students to respond to the demands of business in a changing technological environment.
- Create a professional attitude and provide the foundation for professional competence in a chosen career specialization.

BUSINESS PROGRAM

The business program includes studies in three major categories: general education, the business core, and a major field of specialization. The core courses and the distribution of credit hours for the three categories of studies are listed as follows:

Category

General

ECON 2010 - Principles of Microeconomics Credit: 3.
ECON 2020 - Principles of Macroeconomics Credit: 3.
ECON 3320 - Money and Banking Credit: 3. or
ECON 3810 - Intermediate Microeconomics Credit: 3. or
ECON 3820 - Intermediate Macroeconomics Credit: 3.
ENGL 1010 - English Composition I Credit: 3.
ENGL 1020 - English Composition II Credit: 3.
HIST 2010 - Early United States History Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
MATH 1130 - College Algebra Credit: 3.
MATH 1830 - Applied Calculus Credit: 3.
Credit 8. (8 semester hours selected with advisement from ASTR, BIOL, CHEM, GEOL, or PHYS)
COMM 2025 - Fundamentals of Communication Credit: 3. or
PC 2500 - Communicating in the Professions Credit: 3.
Humanities Credit 9. ¹
Electives Credit 13. ²

Total: 60

Business Core

See note ³

ACCT 2110 - Principles of Accounting I Credit: 3.
ACCT 2120 - Principles of Accounting II Credit: 3.
BMGT 3510 - Management and Organization Behavior Credit: 3.
BMGT 4930 (5930) - Business Strategy Credit: 3.
DS 2810 - Computer Applications in Business Credit: 3.
DS 3520 - Operations Management Credit: 3.
DS 3620 - Business Analytics: Data Driven Decision Making Credit: 3.
DS 3840 - Management Information Systems Credit: 3. or
DS 3841 - Management Information Systems Credit: 3.
ECON 3610 - Business Statistics I Credit: 3.
FIN 3210 - Principles of Managerial Finance Credit: 3.
LAW 2810 - Business Legal Environment and Ethics Credit: 3.
MKT 3400 - Principles of Marketing Credit: 3.

Total: 36

Major Field of Specialization

See note ⁴

Accounting
Business Management or Decision Sciences
Economics
Finance
Marketing

Total: 21

Business Electives

See note ²

Total: 3

Total Required for Graduation: 120

See notes ^{3,5}

Note:

¹ Select from the approved list of TTU General Education courses in Humanities/Fine Arts.

² Elective courses are to be selected in consultation with the academic advisor. MATH 1000 and READ 1010 does not count as credit toward BSBA degree completion, including as elective.

³ Business students may not take business courses on a pass/fail basis.

- ⁴ Business majors must complete at least 50% of the upper-division hours required in the major field of specialization at Tennessee Technological University.
- ⁵ Business majors must earn at least 50% of the business hours required for the degree at Tennessee Technological University.

Admission. See Admission for requirements for admission to the University.

COB Retention Policy. Any student majoring in the College of Business must have a cumulative QPA of at least 2.0 upon reaching junior status (60 hours) to be eligible to enroll in upper-division (3000- and 4000-level) courses. A student who does not meet these requirements must make a reasonable effort, in consultation with the advisor, to repeat 1000- and 2000-level courses as soon as the courses are next offered to bring the QPA to a 2.0.

Having met these requirements, the student must maintain at least a 2.0 overall average, as well as a cumulative 2.0 in all business courses.

A student who does not maintain these averages for any two consecutive semesters after becoming a junior will be required to repeat upper-division courses to raise the average to the required level.

All repetition of courses shall be in accordance with the university policy governing course repetition as described in this Catalog.

Diversity Program. The College of Business administers a diversity scholarship endowment designed to encourage individuals of diverse backgrounds to enter the College and pursue careers in business.

Requirements for Degree. Each curriculum in the College of Business leads to the degree of Bachelor of Science in Business Administration. To obtain a degree, the student must complete the curriculum for the major subject chosen and comply with the general requirements of the University. Advisors in the COB Student Success Center serve as academic counselors for the first two years or until Basic Business requirements have been completed. The department chairperson, or a faculty member designated by the chairperson, serves as the student's academic advisor for the junior and senior years.

At least 50 percent of all business credit hours and 50 percent of upper-division hours in the major must be earned at Tennessee Technological University.

Pre-Law. The pre-law student may complete the requirements for a degree in any curriculum of the College of Business with a major in accounting, business management, economics, finance, marketing, or International Business and Cultures (joint degree with the College of Arts and Sciences). A college degree and a satisfactory score on the Law School Admission Test are generally required for admission to an approved law school. The pre-law program in business is designed to supplement departmental counseling and to assist the student in planning a program for a career in law. The pre-law advisor provides the information relevant to professional law programs, admission requirements, and standards.

B.S. in International Business and Cultures. This joint-degree program, shared by the College of Business and the College of Arts and Sciences, is designed to prepare American and international students for the arena of international relations and trade. Track 1, designed for American students, emphasizes competence in basic and international business, a high level of proficiency in foreign languages, and solidly grounded knowledge of foreign cultures and the world business community. Track 2, designed for international students, offers specialized concentrations in American studies and aspects of American and international business cultures. The capstone course for both Tracks 1 and 2 is a domestic or international internship (IBC 4980). Track 1 students may also choose to spend a semester or year studying abroad in order to improve their foreign language proficiency and deepen their knowledge of foreign cultures.

Master of Business Administration. The MBA is intended for business and non-business undergraduate majors and experienced managers. For details of the MBA program, see the Bulletin of the Graduate School.

Organization

Departments and Undergraduate Curricula:

Department	Major	Concentrations within Major	Degree
Accounting	Accounting		B.S.
Decision Sciences & Management	Business Management	Business & Information Technology	B.S.
		Business Intelligence & Analytics	B.S.
		General Management	B.S.
		Human Resource Management	B.S.
		Production & Operations	B.S.
Economics, Finance & Marketing	Economics		B.S.
	Finance		B.S.
	Marketing		B.S.
	International Business & Cultures		B.S

Student Success Center

Julie Galloway, Director/Advisor

Advisors: Melissa Creek, Rebecca Leimer

Program Manager: Amy Jo Carpenter

Mission Statement: To support, guide, and empower students for academic and social success in their college, professional and life experiences.

All students entering into the College of Business are initially admitted as Basic Business majors and receive support services through the College of Business Student Success Center. The Center offers academic advising to Basic Business majors to ensure that preparation for upper-division students is both thorough and properly sequenced. Freshmen who begin their studies at TTU, as well as those students who transfer to the College from other majors or from other schools, are advised by the Center.

The Center also offers workshops, seminars, and special events through the Student to Career program. The purpose of the Student to Career program is to provide programming that enhances the academic and social elements of our student's college experiences as they transition from business student to business professional. Students participate in resume and interview workshops, dining etiquette training, and special events including career fairs.

The Basic Business curriculum is structured as two-years of full-time study and is the required foundation curriculum for all business majors. Transfer credits are evaluated and applied as appropriate.

Students satisfactorily completing the Basic Business program may affiliate with an upper-division major. Students must complete at least 60 semester hours, including mathematics, English, science, history, humanities, communications and all required sophomore-level business courses, with at least a 2.0 quality point average (QPA). Students should apply for affiliation with the upper-division major through the COB Student Success Center during the last semester of the sophomore year.

Transfer students remain in the division until they complete the required program. If their evaluated transcripts reveal that they have the necessary credits and QPA, they may affiliate with a major immediately. Basic Business students must complete the required program of studies before enrolling in upper-division business courses.

Department of Accounting

Professor Rand, Chairperson; Professors Fesler, Seay; Associate Professor Howard; Assistant Professors Bundy, Davis, Garner, Wilbanks; Instructor Waggoner

The objective of the accounting program is to provide the educational foundation for careers in accounting. The program includes both general and special education. Courses in the arts, sciences, and business areas are required. A wide variety of accounting courses provide flexibility for different accounting specialties. The curriculum is designed to help students gain initial employment and successfully advance in such specializations as public accounting, internal auditing, taxation, and business and industrial accounting. The accounting program helps students to meet the requirements of the state's 150-hour law for CPA candidacy.

Department of Decision Sciences and Management

Professor Armstrong, Chairperson; Chairs of Excellence Guimaraes (J.E. Owen Chair of Excellence in Management Information Systems), Reimann (W. Eugene Mayberry Chair of Excellence in Quality and Technology Management); Professors Miller, Natarajan (W. Eugene Mayberry Professor of Management), Timmerman, Wells; Associate Professors Ballou, Huguenard, Jones, Matson, Pineda; Assistant Professor Nagy; Instructor Smith

The department offers the Business Management major with a choice of four options: General Management (BUMA); Human Resource Management (BUHR); Production/Operations Management (BUPR); and Management Information Systems (BUIN).

General Management is the science of getting people and resources together to accomplish organizational goals and objectives. It can include things like planning, organizing, staffing and, most importantly, leading. General Management graduates obtain positions in administrative services management, lodging management, management consulting, meeting and convention planning, non-profit and community services administration, retail and food services management, project management, and property and facilities management.

Human Resource Management helps an organization make the best use of its most valuable asset: its people. The Human Resources function helps an organization select the best employees, develop them to meet their full potential, and reward them in ways that foster individual and organizational success. Human Resource Management graduates are hired in a wide variety of organizations including financial institutions, health care providers, manufacturing companies, and consulting firms. Entry-level jobs include recruiters, compensation analysts, and human resource assistants. Production & Operations Management is the management of processes and operations used by businesses in the production of their goods and services. It is the study of efficiency and effectively. Manufacturing plants are the main employers of production/operations management personnel, but many service organizations, including health care organizations and banks, also hire graduates as operations analysts or quality and productivity analysts.

Management Information Systems students use information technology to solve business problems. This requires more than technical skills. Our program also emphasizes work place skills like business concepts, critical thinking, communications, working with people, project management, and thinking strategically about technology. MIS students receive a degree in business management, so they can pursue a career that emphasizes either business or technology. Graduates often work as business applications developers, systems analysts, project leaders, database and network administrators, business consultants, and information systems managers.

In addition to offering the four options of study, the department provides a significant amount of the core coursework in organizational behavior, analytical methods, management information systems, operations management, and business strategy, to support other undergraduate majors offered in the College of Business, as well as the graduate program in business.

The department houses two distinguished professorships in the state's program of chairs of excellence allowing universities to attract eminent faculty and individuals of national and international prominence as chairholders. In the department is the J.E. Owen Chair of Excellence in Management Information Systems held by Dr. Tor Guimaraes, a scholar of international distinction. In addition, the department has the W. Eugene Mayberry Chair of Excellence in Quality and Technology Management held by Dr. Curt Reimann, senior scientist emeritus of the National Institute of Standards and Technology and retired director of the Malcolm Baldrige National Quality Award. This distinguished position is named in honor of Dr. W. Eugene Mayberry, retired chairman of the board of governors of the Mayo Clinic.

Department of Economics, Finance and Marketing

Professor , Chairperson; Professors I. Anitsal, DiFurio, Isbell, Martin, Pashley, Pharr, Stephens (Associate Vice President for Academic Affairs), Throckmorton, Wiant; Associate Professors Alley, M. Anitsal; Assistant Professors Cole, Hales, Melichar; Lecturer Nabors

The program in economics is designed to provide a sound preparation for those who expect to pursue professional careers in economics, as well as other areas in business, and to provide service courses for non-business majors. The major emphasis is in developing an understanding of the economic environment, economic institutions, processes, and problems, as well as the basic economic models at work under a market economy.

The curriculum in finance offers a program that will assure sound preparation for those who expect to pursue professional careers in finance, as well as other business. The program is designed to provide a solid understanding of the financial decision-making process, with special emphasis on computer-assisted decision making. The curriculum is designed to enable the student to successfully gain initial employment in the areas of banking, real estate, insurance, investments, financial planning, and financial management.

The marketing major is created to provide students with a broad understanding of the factors and activities involved in the product management, distribution, promotion, and pricing processes. The major prepares students for careers in product and brand management, sales, advertising, retailing, industrial marketing, marketing research, customer service, and physical distribution. The curriculum is designed to include a comprehensive study of manufacturers, wholesalers, retailers, small businesses, service firms, and non-profit organizations.

COLLEGE OF EDUCATION

Lisa Zagumny, Dean
Julie C. Baker, Associate Dean

Departments and Programs

Department of Counseling and Psychology
Department of Curriculum and Instruction
Department of Exercise Science, Physical Education and Wellness

Organization. The College of Education consists of three diverse departments, offering a variety of bachelor's, master's Specialist and PhD degrees. The academic units are Counseling and Psychology, Curriculum and Instruction, and Exercise Science, Physical Education and Wellness (EXPW). The majority of the College's degrees offer a teacher licensure component and the college houses the largest graduate program.

The College also operates four support units with a director at the head of each division. These are the Child Development Lab, College of Education Student Success Center, the Learning Resources Center, and the Office of Teacher Education. Additionally, the College offers an off-campus 2+2 program for elementary education majors at 7 sites across Tennessee.

Programs within the College are accredited by:
Council for the Accreditation of Educator Preparation (CAEP)
National Association of School Psychologists (NASP)

Purposes

- Prepare effective, engaging professionals through a clinically rich, evidence-based program with a network of mutually beneficial partnerships.
- Engage, educate, and empower professionals in teaching, school leadership, counseling, psychology, and professional health careers.
- Provide a high-quality preparation program for doctoral students in Applied Behavior Analysis, Literacy, Program Planning and Evaluation, and STEM Education.
- Ensure the success of individual students in their majors.
- Provide a model childhood development laboratory.

Admission to the College of Education. The undergraduate curricula in the College of Education lead to the degree of Bachelor of Science or Bachelor of Science in Education. Each candidate must complete the curriculum for the major subject and must comply with university requirements for a degree.

Students receive provisional admission upon meeting the admission policies of the institution. For licensure students, admission to the Teacher Education Program requires additional criteria. [Click here for admission to the Teacher Education Program.](#)

Organization

Department	Curriculum	Concentration	Degree
Counseling & Psychology	Psychology		B.S.
Curriculum & Instruction	Early Childhood Education	Early Childhood/Special Education	B.S.
		Early Childhood Education (Non-Licensure)	B.S.
	Elementary Education Multidisciplinary Studies		B.S.
		General (Non-Licensure)	B.S.
		Middle School English, 6-8	B.S.
		Middle School Math, 6-8	B.S.
		Middle School Science, 6-8	B.S.
		Middle School Social Studies, 6-8	B.S.
	Secondary Education	Teaching English as a Second Language	B.S.
		Specific Teaching Field	B.S.E.D
Non-Licensure		B.S.E.D	

Department	Special Education Curriculum	Comprehensive, K-12 Non-Licensure Concentration	B.S. B.S. Degree
		SE Interventionist Biology, 6-12	B.S.
		SE Interventionist English, 6-12	B.S.
		SE Interventionist History, 6-12	B.S.
		SE Interventionist, K-8	B.S.
		SE Interventionist Math, 6-12	B.S.
EXPW	EXPW	Fitness & Wellness	B.S.
		Licensure	B.S.
		Pre-Athletic Training	B.S.
		Pre-Occupational Therapy	B.S.
		Pre-Physical Therapy	B.S.
		Pre-Physician Assistant	B.S.
		Sport Administration	B.S.

Department of Counseling and Psychology

Professor Stein, Chairperson; Professors Cupp, Terneus, Zagumny; Associate Professors Burgin, Loftis, Luke, Michael, Wilcox; Assistant Professors Dukewich, Henniger, Kazanas, Kozak, Malone; Lecturers Edwards, Hensley

The Department of Counseling and Psychology offers the program leading to the degree of Bachelor of Science in Psychology, psychological foundations courses for teacher education, and graduate programs leading to the Master of Arts and Specialist in Education degree in Counseling and Psychology.

Department of Curriculum and Instruction

Professor J. Wendt, Chairperson

The Department of Curriculum and Instruction is responsible for preparing teachers for endorsement in one or more teaching fields or grade levels in Pre-K-12 and for offering graduate work in instruction and curriculum through the M.A. and Ed.S. degrees.

The Department of Curriculum and Instruction offers graduate programs in each of the above areas as well as in the field of Curriculum, Instructional Leadership, Reading Specialist, and Library Science.

Several non-licensure/practitioner programs are offered for students desirous of a broad-based degree and background in education but who do not desire to pursue a teaching license.

Department of Exercise Science, Physical Education and Wellness

Professor Killman, Chairperson; Professor Phillips; Assistant Professors Hauser, Rosemond; Instructor Smith; Lecturers Turnbow, Elmore, Severt

The primary goal of the Department of Exercise Science, Physical Education and Wellness is to prepare future professionals in the fields of teaching, fitness, wellness, sport administration, sport medicine and rehabilitation. Secondary goals are to help students understand the benefits of a physically active lifestyle and to develop healthy behaviors for life.

With a degree in Exercise Science, Physical Education and Wellness, one can:

- Teach lifetime wellness in public schools
- Teach physical education K-12
- Be an athletic director or work in an Athletic facility
- Work in or lead a fitness and wellness program in a corporate, hospital or private setting
- Continue education towards an advanced degree and professional license in physical therapy, occupational therapy or athletic training

Students intending to major in Exercise Science are expected to exhibit a healthy level of physical fitness. All majors must take and satisfy the requirements of a departmental physical fitness assessment annually. Failure to meet the health enhancing level of fitness may result to an administrative change of major.

COLLEGE OF ENGINEERING

D. Hoy, Interim Dean
V. Motevalli, Associate Dean for Research and Innovation
J. Matson, Assistant Dean for Assessments
T.D. Marable, Director of Diversity
H. Ingle, Director, Student Success Center

Departments and Programs

General and Basic Engineering
Department of Chemical Engineering
Department of Civil and Environmental Engineering
Department of Computer Science
Department of Electrical and Computer Engineering
Department of Mechanical Engineering
Department of Manufacturing and Engineering Technology

Vision. 21st Century Renaissance Engineers Revolutionizing Engineering to Solve Societal Problems

Mission. To graduate innovative engineers who solve technological challenges to meet societal needs.

Core Values. The college core values underscore and support its vision and mission through its commitment to ASPIRE to greatness.

AIM HIGH

We aim for the highest levels of excellence in teaching and scholarship.

STUDENTS FIRST

We place the interest of the students first.

PROFESSIONALISM

We foster high standards of integrity and professionalism.

INNOVATIVE

We strive continuously for innovations through research to attain excellence in everything we do.

RECOGNITION

We recognize efforts that accelerate us towards our vision.

EMINENCE

We drive towards attaining eminence in engineering education and research.

Undergraduate Studies. The College of Engineering offers seven programs with curricula leading to Bachelor of Science degrees in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, General Engineering, Mechanical Engineering, Computer Science, and Engineering Technology. Most students entering the College may select a particular major. However, if a student is not sure which major to enter, a common first-year curriculum for most majors is provided by the Basic Engineering Program, allowing additional time for the student to select a field of specialization.

The undergraduate programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET; (<http://www.abet.org>). The Computer Science program (Computer Science, Software and Scientific Applications) is accredited by the Computing Accreditation Commissions of ABET, (<http://www.abet.org>). The Manufacturing and Engineering Technology program is accredited by the Engineering Technology Accreditation Commissions of ABET, (<http://www.abet.org>).

Graduate Studies. The College of Engineering offers programs leading to the Master of Science and Doctor of Philosophy degrees.

The Master of Science, a research-oriented degree program, is offered with majors in Chemical Engineering, Civil Engineering, Electrical/Computer Engineering, Computer Science and Mechanical Engineering. Some programs include a non-thesis option. A full-time student usually completes the degree in 18 to 24 months.

The Doctor of Philosophy, is awarded at the College level. The student's faculty advisory committee and course of study are determined in coordination with the department in which the student is focusing their studies, including any specific

additional requirements the department may have for PhD students. A highly qualified student, possessing an M.S. degree in Engineering, will normally need three to four years of full-time study to complete the degree. Admission to the PhD program directly from the Bachelor's level is also available to exceptionally qualified candidates. For more information see the [Graduate Catalog](#).

The Cooperative Education Programs. Students of all curricula of the College of Engineering are eligible to participate in the University's Cooperative Education program. This program is one in which classroom study is integrated with practical industrial experience in an organized program under which students alternate on-campus study with off-campus employment in industry or with a governmental agency.

A student on the cooperative education program must complete the same course work as required of the regular four-year students. Co-op assignments are typically one to three semesters in duration and may be repeated. Participation in the Co-op program provides excellent hands-on experience in the profession and is considered highly desirable by many employers. See [Cooperative Education](#) for more details.

Diversity Program. The College of Engineering is committed to the development of a diverse student body through scholarships and awareness programming. The strategic goal is to lead among peers in the quality and diversity of the student body, and in retention and graduation rates. Programming strategies include: Summer Bridge program, Peer Mentoring, Cooperative Education, Internship Experiences, Study-Abroad Opportunities, Ongoing Student Support, Assistance with Graduate School entrance, and Career Advisement.

Centers of Excellence. The College operates three State- or NSF-supported accomplished Centers of Excellence: the Center for Manufacturing Research; the Center for Energy Systems Research, and the Cybersecurity Education, Research, and Outreach Center. These Centers provide financial support and state-of-the-art facilities for undergraduate and graduate research projects.

Admission of Freshmen. In addition to meeting the requirements for admission to the University, students seeking admission to an Engineering major must have at least a 3.0 high school average and must have achieved a composite score of at least 20 and a mathematics subtest score of at least 22 on the ACT Test. It is advisable for engineering students to have completed 4 units of science (including physics, if possible) and at least 3 1/2 units of college preparatory mathematics, including a study of trigonometric identities, in high school. Applicants who have met the necessary prerequisites and have scored at least 27 on the mathematics ACT subtest will be admitted to Calculus I (MATH 1910). Precalculus courses (MATH 1710, MATH 1720, or MATH 1730) or other math courses intended as preparation for MATH 1910 may not be utilized to satisfy any curricular requirement for graduation in an Engineering major. Students with less than the recommended preparation in mathematics are encouraged to enter the College of Engineering during summer semester immediately following high school graduation. Course offerings are normally available during the summer semester for students with deficiencies and for students who wish to begin their studies early.

Students selecting the Engineering Technology curriculum must have completed two units of high school algebra.

Admission of Transfer Students. In addition to meeting the requirements for admission to the University, transfer students seeking admission to an Engineering major must have:

- a cumulative higher education QPA of at least 2.0 (excluding credit for remedial and developmental courses) and,
- a grade of "C" or higher in a pre-calculus mathematics course that includes a study of the trigonometric identities.

The College of Engineering will assist transfer students in making the transition to Tennessee Tech at any point in their academic programs.

These requirements also apply to current TTU students desiring to change their major from a non-engineering program to Engineering. Tennessee Tech's engineering curricula are designed so that the needs of students who choose to initially attend a community college or other college/university not offering a B.S. engineering program may be met. Students who complete the first two years coursework of an applicable Tennessee Transfer Pathway Agreement at another institution can complete curricular requirements for a B.S. degree at Tennessee Tech in approximately two years.

Students who wish to transfer to the Engineering Technology program should consult with the Chairperson of the Department of Manufacturing and Engineering Technology.

B.S. Degree and General Education Requirements. The student must complete the curriculum for the major subject chosen and must comply with General Requirements for a Baccalaureate Degree and the General Education Requirements. However, students majoring in engineering who completed one unit of American history in high school are exempt from the requirement of six semester hours of American history. Computer Science and Engineering Technology majors are not exempt and must take American History. If a student is deficient in high school history, the student must remove the deficiency by earning credit in HIST 2010 and 2020 before earning 60 credit hours. This includes most international students.

Studies in the General Education Requirements serve not only to meet the objectives of a broad education but also to meet the objectives of the professional accreditation agencies ABET (for Engineering and Computer Science programs) and ATMAE (for Engineering Technology). In the interest of making engineering/computer science/technology students fully aware of their social responsibilities and their ability to consider related factors in decision-making, courses in the humanities/fine arts and the social/behavioral sciences are required. Each student is obligated to understand these requirements and know any special requirements within their particular major.

The courses offered in the "major subject" (used to calculate Major QPA) include all courses taken which bear the student's departmental designation. This excludes courses listed as not for credit for these students. For computer engineering, ECE and CSC courses will constitute the "major subject."

Advising. Advising, both curricular and career, is considered to be a very important aspect of student success. Advising in College of Engineering is provided by both the professional advisors of the Clay N. Hixon Student Success Center, as well as the faculty and chairs of the academic departments. Students are strongly encouraged to seek out help from the College's advising resources whenever needed or desired.

**Organization
Departments and Undergraduate Curricula**

Department	Major	Concentrations within Major	Degree
General & Basic Engineering	Basic Engineering		
	General Engineering		Bachelor of Science in Engineering
Chemical Engineering	Chemical Engineering	No Concentration Bio-Molecular Engineering Concentration	Bachelor of Science in Chemical Engineering
Civil & Environmental Engineering	Civil Engineering		Bachelor of Science in Civil Engineering
Computer Science	Computer Science	Data Science High Performance Computing Information Assurance & Cyber-security Software & Scientific Applications	Bachelor of Science
Electrical and Computer Engineering	Computer Engineering		Bachelor of Science in Computer Engineering
	Electrical Engineering	No Concentration Mechatronics Vehicle Engineering	Bachelor of Science in Electrical Engineering

Mechanical Engineering	Mechanical Engineering	No Concentration Mechatronics Vehicle Engineering	Bachelor of Science in Mechanical Engineering
Manufacturing & Engineering Technology	Engineering Technology		Bachelor of Science in Engineering Technology

General and Basic Engineering

Associate Professor Wilson Chair; Associate Professor Craven; Assistant Professor Wells; Lecturers S. Wells

The Department of General and Basic Engineering at Tennessee Technological University is the home of two programs: Basic Engineering (BE) and General Engineering (ENGR). Basic Engineering is the initial major for first-year engineering students who have not decided on a degree-specific engineering program. General Engineering is the major for engineering students seeking the Joint TTU-ETSU Bachelor of Science in Engineering (BSE) degree. In addition to these two programs, the department provides supporting courses for several other departments in the College of Engineering.

The Basic Engineering Program provides first-year engineering students with a home to further explore the various branches of engineering. A special course, ENGR 1210 Introduction to Engineering, offers students an excellent opportunity to determine their choice of degree-specific program. Faculty in the department have diverse engineering backgrounds and they are readily available to students. Students may change their major to a degree-granting program at any time during the first year. Students should consult academic advisors to determine the optimal set of courses for majors of interest.

The General Engineering Program is the home of the Joint TTU-ETSU (East Tennessee State University) BSE. General engineering is the broadest engineering degree program. As such, general engineering is one of the most rapidly growing engineering degrees in the United States. In terms of engineering, the joint degree program includes engineering science and mechanics; engineering design; and supporting industrial, mechanical and electrical engineering coursework. Students in the joint program must complete a minimum of 32 credit hours at both universities. Students have a total of 15 credit hours of technical and free electives.

Graduates of the joint program will be able to work effectively with non-engineers or discipline-specific engineers or both within diverse industries such as manufacturing, transportation and energy, and in both public and private sectors. In addition to entering the workforce directly as engineers, graduates of the program may go onto graduate studies in engineering, management, education, law, medicine or other professions. The BSE is an excellent launchpad for many non-engineering careers.

Department of Chemical Engineering

Professor Arce, Chairperson; Professors Biernacki, Stretz; Associate Professor Lapizco-Encinas, Sanders; Assistant Professors Arias-Chavez, Pascal, Rice, Rice-York (Center for Manufacturing Research), Zhang

Chemical Engineering (ChE) is a respected and ideal profession for modern times and dynamic changing markets. It is broad, adaptable to a large family of businesses (i.e., petroleum, environmental, biotechnology, biomedicine, pharmaceutical, materials, food and others) and highly paid. Rooted in basic sciences, ChE is mainly concerned with the design, scaling (up or down), operation and control of the transformation and separation of raw materials into valuable products. Chemical Engineers are the inventors of nylon fibers, artificial heart valves, nasal drug deliveries and efficient processes to clean our environment, to name a few.

The Department of Chemical Engineering at Tennessee Tech is a vibrant community of engineering educators where both teaching and research synergistically work to effectively enhance student learning. In fact, Tennessee Tech is the home of some of the top educators in the region with most of the ChE Department engaged in active research on various aspects of student learning. These efforts have led to multi-award-winning distinctions university-wide, nationally and internationally. ChE faculty members are frequently invited to conduct training workshops for colleagues in the United States and abroad and, therefore, students are exposed to some of the most effective and modern approaches in

engineering education. The ChE curriculum is often revised to reflect changes in teaching pedagogy as well as shifts in the areas that hire our graduates, such as biotechnology, materials, and the environment. Thus, Chemical Engineering at Tennessee Tech offers a well-rounded, competitive and modern curriculum highly adaptable to the changing markets of the present time.

For those interested in industrial careers, the Tennessee Tech experience has proven successful in a variety of businesses and national labs, such as Eastman, DuPont, Proctor & Gamble, Pharmacia, International Paper and Saturn, among others, as well as the Environmental Protection Agency and the Department of Energy (Oak Ridge). For those more interested in graduate education, Tennessee Tech graduates can be found at some of the most prestigious universities in the country and have received fellowships from competitive agencies such as the National Science Foundation and Tau Beta Pi.

The Department of Chemical Engineering offers programs leading to the degrees of Bachelor of Science, Master of Science in Chemical Engineering, and Doctor of Philosophy in Engineering. The undergraduate chemical engineering program is accredited by Engineering Accreditation Commission of ABET, <http://www.abet.org> and the American Institute of Chemical Engineers. Two options are offered, both standard as well as biomolecular concentration. Additionally, for those more motivated and qualified students, a distinction in the major option is available to enhance the B.S. degree as well as a fast-track (5-year) B.S./M.S. option.

The mission of the Chemical Engineering Department at Tennessee Tech is to prepare relevant and adaptive chemical engineers in state-of-the-art areas by emphasizing real world problem solving and critical thinking skills.

Students majoring in Chemical Engineering must meet the College of Engineering requirements for a Bachelor of Science degree as well as the Engineering Accreditation Commission of ABET, <http://www.abet.org> requirements. Students majoring in chemical engineering take courses in composition, literature, humanities, social science, mathematics, physics and chemistry. Students are required to take more than 40 hours of chemical engineering core courses including Material and Energy Balances, Thermodynamics, Transport Processes, Process Control, Reaction Kinetics and Process Design. In order to relate theory developed in classroom environments to practical application, most chemical engineering classes have an integrated lab experience. Nine hours of technical electives are also required that allow the student curricular flexibility.

Owing to the increased level of regional and national interest in bio-related fields within chemical engineering (bio-fuels, pharmaceuticals, etc.), the Department of Chemical Engineering now offers a "Bio-Molecular Engineering Concentration". Students graduating with Bio-Molecular Engineering Concentration will still receive a B.S. Chemical Engineering degree (and take all of the core chemical engineering classes), but will have extensive exposure to bio-related courses (cell biology, biochemistry, microbiology, biological processes in chemical engineering, etc.). Note that students enrolling in the Bio-Molecular Engineering Concentration will not encounter any additional credit hour burden.

In addition to a vibrant, graduate-level research program, the Department of Chemical Engineering offers many opportunities for undergraduate research for freshmen through senior students. Such recent topics include micro devices, materials fabrication, nanoparticles, fuel cells, and molecular-level compound design, among others. Students have the opportunity to present their work at regional and national conferences as well as become co-authors in refereed journal publications. Performing undergraduate research is one of the most successful roads to graduate school for an M.S. or a Ph.D. degree. A number of our recent B.S. graduates have continued their graduate studies at Tech, while others have entered graduate programs at universities like Georgia Tech and MIT.

Department of Civil and Environmental Engineering

Associate Professor Mohr, Chairperson; Professors Badoe, Crouch, Henderson, Huddleston, Huo, (Associate Vice President for Academic Affairs), Liu, Oswalt, Otuonye (Associate Vice President for Research); Associate Professors Click, Kalyanapu, Ramirez, Weathers; Assistant Professors Datta, Huff, VandenBerge; Lecturer Thanoon

The Department of Civil and Environmental Engineering offers programs leading to the degrees of Bachelor of Science, Master of Science in Civil Engineering, and Doctor of Philosophy in Engineering. The principal mission of the Civil

Engineering program is to offer the strong academic program needed to produce well-educated students who can become productive members of the civil engineering profession. This mission is consistent with the academic component of the University's mission, which is in part to provide a strong academic program in engineering. To achieve this mission, the undergraduate program is structured to provide an education consisting of mathematics, basic science, engineering sciences, engineering design, humanities and social sciences consistent with accreditation standards and national needs. The civil engineering component of the program is designed to provide a broad foundation by requiring course work in structures, environment, geotechnics, materials, hydraulics, surveying, and transportation. Design-based instruction is required to provide students with the opportunity to prepare professionally for the diverse opportunities available to them.

The goal of the undergraduate Civil Engineering program is to instill in our graduates the knowledge, skills, attitude, and ethical values necessary to be successful practitioners who are able to impart positive social impacts at the state, regional, national, and international levels. The greatest desired impacts are expected at the state and regional levels. Additionally, we seek to provide the necessary academic background for civil engineering graduates pursuing advanced degrees.

The CEE Program Educational Objectives, which describe the professional accomplishments that graduates should achieve at various stages of their professional career, are as follows:

1. Graduates should demonstrate the ability for early career professional growth based on their grasp of fundamental concepts in civil engineering. *Within the first few years after graduation, CEE graduates should be employed by an organization that serves the profession or enrolled in postgraduate studies. They should be participating in engineering practice based on their academic foundation.*
2. Graduates should utilize knowledge and skills to participate in civil engineering design and/or management processes. *About five years beyond graduation, CEE graduates should be participating effectively in design processes and developing civil engineering solutions within a team setting. They are expected to be engaged in management and leadership roles for civil engineering projects and to assume positions of greater responsibility to the profession and public.*
3. Graduates should develop professionally through a commitment to life-long learning. *At all stages, CEE graduates should exhibit their potential for a sustained productive career through life-long learning. They should continue the professional registration process if necessitated by employment.*

Achievement of the department's goal and objectives are assessed through various measures. Current assessment measures include course portfolio, graduating senior exit survey, college base exam, Co-Op participant survey, performance on the subject areas of the Fundamentals of Engineering Exam, alumni surveys, and feedback from employers. The assessment process enables the CEE Department to ensure that the present curriculum fully supports the desired Educational Objectives and Program Outcomes; subject to continuous verification, evaluation, and improvement by appropriate assessment.

Design is introduced at the freshman level with design projects assigned in ENGR 1110 and ENGR 1120. Lecture is used to introduce students to the design approach. Design assignments utilize both the individual and the team approach to practical problems. Problems are open-ended and include realistic constraints.

The design experience is broadened in Mechanics of Materials, CEE 3110, during the fourth semester with design-oriented homework. As proficiency in science and synthesis increases, students are guided into more complex design considerations. By the sixth semester, students are engaged in design in each area of emphasis.

The basic sciences and mathematics that were mastered in the freshman and sophomore years and the introduction to engineering topics provide the opportunity to broaden the design experience in the junior year. Five of the twelve courses selected for the junior year have design components. These are as follows: Civil Engineering Materials, CEE 3030; Environmental Engineering, CEE 3413; Hydraulics, CEE 3420; Transportation Engineering, CEE 3610; and Structural Steel Design, CEE 4310. The design component of each course is carefully selected to take advantage of the student's strengths in science, mathematics and engineering topics as each is related to the content of the current course.

Evidence of the breadth and depth of the design experience continues in the senior year. The design content of CEE courses increases from 8 percent in the sophomore year to 39 percent in the junior year and 52 percent in the senior year. Several courses including those that may be taken as a sequence and/or technical elective are considered to be totally design. In addition to technical design concepts, the student applies other realistic constraints in design; namely, economic factors, safety, reliability, aesthetics, ethics and social impacts. The design component in most senior courses

addresses design with applications to practical engineering problems so that the student is exposed to design experiences pertaining to his/her specific emphasis.

Senior Design Project, CEE 4950, provides a major overall design experience and is scheduled to be taken during the last semester. The course emphasizes the use of principles acquired during the previous seven semesters, and formal lectures are kept to a minimum. Students are organized into teams composed of members representing each area of emphasis in Civil Engineering to produce designs for the same project. Each team must make its own decision as to its "best" design.

The undergraduate Civil Engineering program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. Students are expected to select an area of concentration from among the following: Transportation Engineering, Structural Engineering, Structural Mechanics, or Environmental Engineering. Civil Engineering students are required to take the Fundamentals of Engineering Examination (FE) administered by the Tennessee State Board of Architectural and Engineering Examiners.

Department of Computer Science

Professor Gannod, Chairperson (Stonecipher Distinguished Professor); Associate Professor Talbert, Associate Chairperson; Professors Eberle, Elizandor, Ghafoor, Scott, Siraj; Associate Professors Kosa, Rogers; Assistant Professor Rahman; Instructors Alam, Boshart, Brown; Lecturer Crockett

The computer science curriculum is designed to educate students in the basic areas of computer science, including computer architecture, programming languages and operating systems, general approaches to problem solving and programming, as well as theoretical concepts dealing with models of computation and the design and analysis of algorithms. By appropriate choice of elective course work, the student may prepare for a career in software development for scientific/engineering applications, management decision support applications or graduate work in computer science. Graduates of the program are regularly recruited by industry, government and business for computing careers in a variety of areas including systems design and software engineering.

Department of Electrical and Computer Engineering

Professor Mahajan, Interim Chairperson; Professors Alouani, Carnal, Ojo, Qiu, Radman; Associate Professors Austen, Belkacemi, Bruce, Hasan, Mahmoud; Assistant Professor Bhattacharya

Electrical engineering and computer engineering are dynamic fields that provide great benefits to society. People's lives are touched many times daily by the products and services made possible by electrical and computer engineers. The Department of Electrical and Computer Engineering at Tennessee Technological University prepares its students for the challenges, opportunities, and rewards of these rapidly changing fields.

The mission of the department is to provide quality undergraduate and graduate education and perform research in the areas of electrical and computer engineering to enhance the competitiveness of our graduates and contribute to economic, scientific, and social development. The department strives to continuously strengthen its reputation for excellent academic programs at the regional, national, and international levels.

As part of this mission, the department offers two undergraduate academic programs, one leading to the Bachelor of Science in Electrical Engineering (B.S.E.E.) degree and the other leading to the Bachelor of Science in Computer Engineering (B.S.Cmp.E.) degree. In addition, a concentration in Mechatronics (electronic control of mechanical systems) is available in the B.S.E.E. program. The department also offers graduate programs leading to the Master of Science (M.S.) in Electrical Engineering and Doctor of Philosophy (Ph.D.) in Engineering degrees; these programs are described in the Graduate Catalog.

The B.S.E.E. and B.S.Cmp.E. program objectives, which were formulated to meet present and anticipated student needs and satisfy University, State, and accrediting agency requirements, are:

1. Within one year following graduation, our graduates will be:
 - i. working in the field of electrical and computer engineering and/or

- ii. pursuing graduate studies
2. Within five years following graduation, our graduates will have:
- i. progressed in the careers as measured by indicators such as promotions, positions of leadership, awards, recognitions, entrepreneurial activities, products or processes developed, patents, and/or publications;
 - ii. advanced their knowledge and expertise as measured by continuing education, advanced degrees, and/or professional registration;
 - iii. contributed to the profession and society as by research, national and international collaboration, professional service, community service and/or public service.

Students are required to follow an integrated curriculum of courses and experiences that lead to the achievement of these objectives. The curriculum is designed so that students will obtain state-of-the-art technical knowledge, design experience, enhanced critical thinking and problem-solving skills, an understanding of ethical responsibility, and verbal and written communication skills. To maintain quality, the achievement of these objectives, and other more specific outcomes based on these objectives, is evaluated on a regular basis and the results are used to update courses and curricula.

An integrated design experience is provided to all B.S.E.E. and B.S.Cmp.E. students which begins with elemental designs in lower level courses and culminates in a year-long, comprehensive capstone design experience at the senior level. The program places considerable emphasis on laboratory experience and computer applications, and the department maintains several state-of-the-art laboratories.

Students are encouraged to develop leadership and other social skills by participating in professional and honor societies such as IEEE and Eta Kappa Nu.

High School Preparation. Engineering study requires a strong foundation in mathematics and science. Recommended high-school preparation includes Pre-Calculus, Chemistry, and Physics. In addition to technical skills, engineers must be able to communicate effectively, both in written and spoken form, and to work productively as team members. A well-rounded background in non-technical areas, including history, culture, arts, and current events, is also important.

Bachelor of Science in Electrical Engineering (B.S.E.E.) Degree Program. Electrical engineers research, design, develop, and test electrical and electronic equipment, including systems relating to communication, power generation and distribution, automation, robotics, radar, and electronic navigation. Departmental graduates are well-rounded and professionally prepared with a strong foundation in electrical engineering fundamentals. They are employed by many large and small companies such as TVA, IBM, Raytheon, Texas Instruments, ATA Arnold Air Force Base, DENSO, Schneider Electric, Nissan, and various electric utilities. Since its founding in 1942, the B.S.E.E. degree program has produced nearly 3000 graduates and has been accredited since 1966 by the Engineering Accreditation Commission of ABET, <http://www.abet.org> or its predecessor organizations.

Students in the B.S.E.E. program are required to take chemistry, mathematics, calculus-based physics, and general education courses including English composition and literature. They take core electrical engineering courses such as circuit analysis, signals and systems, electromagnetic field theory, electronics, microcomputer systems and electronic circuits. They acquire breadth in four fundamental areas of electrical engineering and depth in at least one area. The department has expertise and offers in-depth courses in a number of electrical engineering areas: Communications and Signal Processing; Devices and Electromagnetics; Digital Systems; Power; and Robotics, Automation and Control. The Bachelor of Science in Electrical Engineering also offers a concentration in Mechatronics. This concentration provides a combination of electrical, mechanical, and control system engineering courses to prepare students to work on systems consisting of interdependent electrical and mechanical components. Applications of mechatronics include automobiles, robotics, and automated manufacturing systems.

Bachelor of Science in Computer Engineering (B.S.Cmp.E.) Degree Program. Computer engineers research, design, develop, and test computer and computer-based equipment such as CPUs, high-performance computers, embedded computer systems, computer-based data acquisition and control systems, computer networks, and computer graphics hardware and software. The B.S.Cmp.E. program is tailored to meet the growing demand for engineers with expertise in computer and computer-based systems hardware and software design. This program, a joint effort between the Department of Electrical and Computer Engineering and the Department of Computer Science, is designed to prepare graduates for entry into the computer engineering profession. They are employed by many large and small companies such as ADTRAN, Boeing, IBM and TVA. Since its beginning in 1998 the program has been continuously accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

Students in the B.S.Cmp.E. program are required to take chemistry, mathematics, calculus-based physics and general education courses including English composition and literature. The core consists of a combination of electrical engineering and computer science courses that provide knowledge and expertise in both hardware and software design. Upper-level courses include various electives and feature a number of design projects involving both hardware and software.

Department of Manufacturing and Engineering Technology

Professor ElSawy, Chairperson; Professors Fidan, Vondra; Associate Professor Kamal; Assistant Professor Qasaimeh

The Department of Manufacturing and Engineering Technology (MET) prepares competent technologists and applied engineering workforce dedicated to solving complex technological problems. The department is accredited by the Engineering Technology Accrediting Commission of ABET which sets standards for the Engineering Technology academic program accreditation.

TTU's Department of Manufacturing and Engineering Technology (MET) offers a four-year degree program leading to a BS Degree in Engineering Technology with a minor in Business. The department began in 1956 within the College of Engineering and has the distinction of being accredited by ETAC of ABET. The program was accredited by Association of Technology, Management and Applied Engineers (ATMAE), previously national Association of Industrial Technology (NAIT) - since 1982 and today serves as a model for Tennessee and the nation.

The Department of Manufacturing and Engineering Technology prepares technologists for employment in manufacturing industry and management/supervisory positions. Through specialized classes, group projects, hands-on-experience, active learning and individual assignments, students learn to be creative and resourceful. Students learn public relations, personnel supervision, and problem solving through group work, instruction, and guest speakers. This background enables graduates to share the planning responsibilities of the engineer, scientist, or manager, as well as the production responsibilities of the technician, craftsman, or laborer. The Department of Manufacturing and Engineering Technology graduates are trained in group leadership and communications at all levels of the industrial workforce.

The curriculum in Engineering Technology is built upon technical education and operations, human and industrial relations, business administration, and advanced technologies. The department strives to keep the curriculum up-to-date, incorporating new technological developments as they occur. The department offers classes in materials for manufacturing as well as conventional manufacturing processes such as: metal casting, metal manufacturing technology, welding technology, foundry technology, industrial plastics, and maintenance technology. Moreover, the department offers courses in high-tech areas such as Applied Electricity and electronics, Industrial Electronics, Programmable Logic Controllers and Process Control, Computer Numerical Control Machining Practices, Computer Aided Design and Industrial Automation, which includes Robotics and Hydraulics and Pneumatics. Plant Layout and Material Handling, Industrial Communications, and Industrial Supervision enable the manufacturing and engineering technology graduates to achieve the competencies required to apply the latest technological advances in a given field.

The curriculum also emphasizes other vital areas in the industrial workplace: Operations Management, Organizational Behavior, Accounting, Human Relations, Introduction to Psychology, Industrial Safety, Manufacturing Cost Estimating, Methods Design, and Quality Assurance six Sigma. The addition of these courses to the curriculum gives the graduates an appealing and well-rounded education. This lets potential employers know that she or he understands all of the common operations that exist within a manufacturing environment.

Professional support of any college program is a tremendous advantage to both the students and the businesses. This support is given to the Department of Manufacturing and Engineering Technology by the Advisory Board (MITAB). Nissan America, TRW, Peterbuilt, Saturn, BMW, UPS, and Advances Manufacturing Technologies, Incorporated are a few of the companies represented on the board. The advisory board is a great way to look at companies and see what they have to offer. They also provide a great collective knowledge about the industrial and manufacturing fields from which all students are encouraged to draw.

Manufacturing and Engineering Technology students are also strongly encouraged to participate in cooperative education assignments with well-respected industrial manufacturers. Qualified students gain valuable on-the-job experience while earning money to offset educational expenses.

By supplying graduates with a technical, operational, and managerial education, the Department of Manufacturing and Engineering Technology meets the needs of manufacturing industry. The wide breadth of technical positions in the industry assures the MET graduate of an interesting and challenging career. Most of the current MET students have already secured jobs by the time they graduate.

Before graduation, MET students are required to take either Certified Technology Manager (CTM) or Certified Manufacturing Specialist (CMS) examination administered by the Association of Technology, Management, and Applied Engineering (ATMAE). Historically, the outstanding pass rate of TTU students on this national examination attest the quality of the MET graduates.

Department of Mechanical Engineering

Professor Rao, Chairperson; Professors Canfield, Cui, Darvennes, Idem, Sundaram, Ting, D. Wilson, Zhang, Zhu; Associate Professors Cunningham, Pardue (STEM Center Director); Assistant Professors Anton, Chen, Languri, Lee, Vasselbehagh, Y. Zhang; Lecturers Pardue, Sinha

The Mechanical Engineering Department at Tennessee Tech aspires to be recognized globally for outstanding education and research, leading to well-qualified engineers who are adaptive professionals, inquisitive, entrepreneurial and successful in engineering practice, research, and public service.

The Department of Mechanical Engineering at Tennessee Technological University is committed to preparing its graduates for productive, professional careers in mechanical engineering. The Department offers the Bachelor of Science degree in Mechanical Engineering (B.S.M.E.). This degree program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. In addition, a concentration in Mechatronics (electronic control of mechanical systems) is available in the B.S.M.E. program.

The profession of mechanical engineering focuses on motion and the forces and energy associated with motion. It encompasses the design and analysis of machines and processes to meet the expanding needs of a changing, technological, energy-based society. Applications within the profession are diverse; consequently, mechanical engineers may find positions in many specialties. ME graduates from Tennessee Tech may find employment in transportation industries, consulting firms, governmental agencies and laboratories, manufacturing facilities, power-production industries, process industries, universities and others. The undergraduate curriculum is broad in scope and strongly based in the fundamentals essential for professional practice, life-long learning, and advanced study at the graduate level. Design is a unique element of the profession; therefore, the design experience is developed and integrated throughout the curriculum. Mechatronic engineering is a discipline that combines mechanics, electronics, controls and computing in the design of products and manufacturing processes. The TTU Mechatronics concentration prepares engineers that are familiar and competent with cutting-edge technology in both mechanical, electrical and computer engineering and are prepared to develop innovative products to address societal needs.

The mission of the Department, within a regional and global context, encompasses: provision for its students to prepare for a productive career in a competitive, dynamic, technologically-based society; advancement of the knowledge of mechanical engineering principles and applications; and service to the public. The Departmental mission is essential to the University-wide goal of maintaining a strong engineering program. The Department pursues the following four goals to fulfill its mission:

1. To maintain a high-quality, accredited program with an integrated curriculum. This goal is essential to prepare all graduates for entry-level professional employment and masters-level graduate studies.
2. To improve the student's ability to formulate and to express thoughts using both written and oral communication. This goal is essential to evaluate arguments and evidence from various fields of study, to discover information, and to engage in independent inquiry. In addition, this goal promotes an awareness of ethical, social and safety considerations in all engineering endeavors.
3. To enhance the student's capacity for leadership, individual responsibility and integrity. This goal should foster an appreciation and respect for new and different ideas, opinions, and abilities.

4. To develop the student's commitment to life-long learning. This goal should foster a desire to continually improve individual abilities and enhance knowledge. In addition, this goal promotes professional enthusiasm and an enhanced quality of life.

The freshman curriculum is similar for all engineering students. Here emphasis is placed on the fundamental tools of mathematics, chemistry, physics, computer programming, written communication, humanities and basic engineering. Students are introduced to the University and engineering in Connections to Engineering (ENGR 1020). In Engineering Graphics (ENGR 1110), the importance of conveying ideas via sketches and computer-aided drafting; particular points are made relevant to machine design and manufacturability. Finally, in Programming for Engineers (ENGR 1120), students learn the essentials of programming methodology in a modern programming language. The sophomore curriculum stresses the fundamental tools of mathematics, physics, and engineering sciences (statics, dynamics, mechanics of materials, and fundamentals of electrical engineering).

The junior curriculum is primarily devoted to the engineering fundamentals of thermodynamics, fluid mechanics, heat transfer, dynamics of machinery, materials and processes in manufacturing. Completing this is a mechanical engineering analysis course and machine design.

The senior curriculum contains capstone design experiences in three courses: Applied Machine Design (ME 4020 (5020)), Senior Capstone Design Project (ME 4410 and ME 4420), and Thermal Design (ME 4720 (5720)). The senior year of the ME curriculum is completed by an introduction to modeling, vibrations and controls (ME 3050) and by each student's selection, in consultation with their advisor, of 5 senior technical electives referred to as Area of Emphasis (AOE) courses. These courses help prepare the student for whatever their future plans may be in engineering.

COLLEGE OF FINE ARTS

Jennifer S. Shank, Dean

Departments and Programs

Department	Major	Concentrations within Major	Degree			
School of Art, Craft & Design	Fine Arts	Art Education	Bachelor of Fine Arts			
		Clay				
		Design, Digital Media Emphasis				
		Fibers				
		Glass				
		Metal				
		Painting				
		Wood				
		School of Music		Music	Instrumental/General Music, K-12 Licensure	Bachelor of Music
					Music Performance	
Composition Emphasis						
Instrumental Option						
Jazz Option						
Piano Option						
Vocal Option						
Vocal/General Music, K-12 Licensure						

School of Art, Craft and Design

Professor, Winkle, Director; Professor Brock (Glass), Assistant Professor Blair (Art Education), Professor Campbell (wood), Professor Doubet (Art Foundations) Assistant Professor Gallop (Design), Associate Professor Johnson (Painting), Assistant Professor Randall (metals), Professor Ventura (Art History), Assistant Professor Wilson (Clay), Assistant Professor Wood (fibers).

The mission of the School of Art, Craft and Design is to prepare BFA majors for careers in visual art studios, design practice and art education. More broadly, the department seeks to enable students to discover creative potential, to learn skills design processes, to acquire cultural knowledge, and to develop critical faculties through visual art experiences. The School also seeks to instill an appreciation of visual arts in all University students, and to broaden the cultural perspective of the community, state, and region. A unique facet of Tennessee Tech is the Appalachian Center for Craft which is dedicated to promoting excellence in American craft by providing access to the highest quality professional education in studio crafts, and presenting diverse craft artists, works and events in a community arts context.

Main Campus

Professor Kimberly Winkle

The nationally recognized faculty of art education, art history, art foundations, design and painting, as well as the studios, classrooms and offices for the Bachelor of Fine Arts concentrations in art education, design and painting, and the art foundations and art history curricula, are located in the Bryan Fine Arts Building and Foundation Hall.

The Bachelor of Fine Arts concentration in art education, prepares individuals to become art teachers in Grades K-12. The program for licensure in Art Education is designed to provide students with a broad liberal arts component, a program of professional studies, and a major in the teaching field.

The Bachelor of Fine Arts concentration design prepares students to pursue a professional career in visual communications, and the concentration in painting prepares the student for a career in studio art. Students develop

technical competence, experience in design and problem solving, knowledge of art history and theories of style, the application of critical thinking, and the development of an accomplished portfolio of artwork.

Craft Center

Debra Ruzinsky, Director

The primary function of the Joe L. Evins Appalachian Center for Craft is to serve the Bachelor of Fine Arts program and to offer a high-quality studio art curriculum, concentrating in the craft media of clay, fibers, glass, metals, and wood. The Craft Center expands the development of contemporary expression and the lineage of craft techniques and forms, and enhances a flourishing crafts culture in the region through its academic, workshop and exhibition programs.

The Craft Center offers over 50,000 square feet of studio space in clay, fibers, glass, metal and wood, as well as 4,000 square feet of galleries, on-site housing facilities, café, and many other amenities. Located on 550 acres of woodland overlooking Center Hill Lake in Middle Tennessee, the Craft Center is 24 miles from the Tennessee Tech University campus.

The Craft Center's facilities support Bachelor of Fine Arts craft concentrations led by the nationally recognized faculty in clay, fibers, glass, metals, and wood. Fully committed to their work both as teachers and as artists, they provide excellent studio instruction in an extraordinary studio environment. Six artists-in-residence also enhance the studio and gallery offerings. Main campus art courses and the general educational curriculum of Tennessee Technological University comprise about half of this unique, top-quality educational experience.

Bachelor of Fine Arts

Craft Certificate

The Craft Certificate Program is designed for those seeking a professional-level training in craft media without the objective of a college degree. This provides an especially good opportunity for those who already have a degree and wish to focus on specialized training. Students finishing the Craft Certificate Program receive a Certificate of Completion from the Craft Center. This represents a significant level of accomplishment, but it is not a college degree.

Certificate Program admission standards are the same as for the BFA degree program. Course requirements are similar to the BFA curriculum, but exclude general education courses and the BFA thesis project and exhibition. Independent study credits may, at the discretion of the faculty advisor, be applied to a studio project representing the level of accomplishment at culmination of studies. Students in the Certificate Program must maintain at least six credits of coursework per semester, and must complete the foundation requirements within the first eighteen credits in the program.

School of Music

Director Mullen; Professors Allcott (Orchestra/Violoncello), Chang (Violin/Viola), Danner (Theory/Composition), Hansen (Horn), Harris (Band/ Music Education), Hauser (Trombone/Theory), McCormick (Jazz Studies), Morris (Tuba/Euphonium), Pulte (Voice), Shank (Music Education), Zamer (Choral); Associate Professors Godes (Piano), Hill (Percussion), Sullivan (Vocal/General Music Education); Assistant Professors Adduci (Oboe), Cramer (Clarinet), Hagarty (Trumpet), Matthews (Flute), Miller (Band); Reames (Voice), Younglove (Saxophone); Lecturer Thurmond

The School of Music provides an intellectual and creative environment for the study and production of the performing arts. The faculty emphasizes quality instruction, in both the classroom and the studio, embraces innovation, and acknowledges the role of technology in meeting the academic and artistic needs of the students. The School of Music prepares students for careers in music, enables students to enrich their lives by participating in music activities, instills in all University students an appreciation of music and the visual arts, and broadens the cultural perspective of the community, state, and region.

COLLEGE OF INTERDISCIPLINARY STUDIES

Mike Gotcher, Dean

Departments and Programs

Department	Major	Concentrations within Major	Degree
Environmental Studies	Environmental & Sustainability Studies	Environmental Science	Bachelor of Science
		Biology Option Chemistry Option Natural Resources Option	
Interdisciplinary Studies	Interdisciplinary Studies	Environmental Technology Society, Culture & Communication	Bachelor of Science
		Professional Studies	
Professional Studies	Professional Studies	Health Administration Information Technology International Organizational Leadership Organizational Leadership	Bachelor of Science

Mission and Scope. The College of Interdisciplinary Studies provides a framework for supporting innovative boundary-crossing inquiry among students and faculty. To this end, the College of Interdisciplinary Studies supports the efforts of existing cross-disciplinary programs, and envisions new programs and opportunities for research, scholarship, and service.

School of Environmental Studies

Dr. Hayden Mattingly, Director; Lecturer, Sharp; Assistant Professor, Boles

The School of Environmental Studies (SOES) fosters in students the desire to lead purposeful professional lives through the application of scientific principles to environmental issues within the social, political, and economic framework of our society <https://www.tntech.edu/cis/ses/index.ph>.

Environmental and Sustainability Studies Undergraduate Program

The Bachelor of Science in Environmental and Sustainability Studies (ESS) in the School of Environmental Studies offers a broad range of cutting-edge degree options in the environmental sciences. The program, which is 120 credit hours, prepares students for meaningful careers dedicated to the study, preservation and future of our environment.

1. The Environmental Science concentration allows students their choice of three study options: Environmental Biology, Environmental Chemistry or Natural Resources. This opportunity teaches students the symbiotic nature of a variety of disciplines and allows them to explore and investigate environmental problems on their own and then present their findings to a diverse audience (<https://www.tntech.edu/cis/ses/ess/esses/index.php>).
2. The Society, Culture and Communication concentration allows students to explore how cultural values and beliefs influence the way people use the environment. Students study how organizations address environmental problems and how complex concepts regarding those issues are communicated. In this concentration, students can choose a program of study in communications and media, social science and policy, or leadership and environmental management (<https://www.tntech.edu/cis/ses/ess/essscc/index.php>).
3. The Environmental Technology concentration teaches students to use GIS tools (geographic information systems) in making informed environmental decisions and in modeling environmental processes. Students also explore conventional water treatment methods (<https://www.tntech.edu/cis/ses/ess/esset/index.php>).

Professional Science Master's with a Concentration in Environmental Informatics (PSM-EI). The 33-hour PSM-EI degree offers students an interdisciplinary curriculum that combines business and science in a unique learning experience that allows students to look at environmental data in a new way and from a business standpoint (<https://www.tntech.edu/cis/ses/psm/index.php>).

Environmental Sciences Ph.D. (EVS) Program with a concentration in agriculture, biology, chemistry, geosciences, and integrated research. The School of Environmental Studies offers an interdisciplinary Ph.D. program that will help students reach their career goals in the extensive fields of environmental science. Our Ph.D. program endeavors to be more than a traditional "academic" program. The interdisciplinary faculty work with graduate students to develop the critical thinking skills necessary to solve real-world problems (<https://www.tntech.edu/cis/ses/evsphd/index.php>).

School of Interdisciplinary Studies

Dr. Steven Frye, Interim Director/Assistant Professor; Lecturer Bull

The School of Interdisciplinary Studies is committed to providing university students with a flexible, personalized major that allows each student the opportunity to pursue his or her individual interests. The goal is for students to think creatively, integrate knowledge and skills from a variety of disciplines, and build critical thinking skills.

A major in Interdisciplinary Studies brings together two concentration areas into an integrated and personalized program of study. Concentrations are chosen from the many fields of study offered at TTU. In their last semester each I.S. major completes a culminating project where the two concentration areas are brought together in an extensive research thesis or real-world project. This capstone experience offers the opportunity to draw from and integrate the knowledge gained in both areas.

What can you do with a major in Interdisciplinary Studies? The most appropriate answer to that question may be "what can't you do with a major in Interdisciplinary Studies?" The flexibility to pursue individual interest areas allows students the opportunity to fine-tune their education to match the knowledge and skill-set needed in a variety of fields.

School of Professional Studies

Dr. Joe Roberts, Interim Director

The Professional Studies Program is committed to serving and providing traditional and non-traditional students with an intellectually engaging and effective undergraduate and graduate educational experience utilizing technology through on-ground, hybrid, and online delivery systems as they enhance their knowledge, analytical abilities, critical thinking, and communication skills for upward mobility in their professional field.

Bachelor of Professional Studies (BPS). The Bachelor of Science in Professional Studies, (120 credit hours) prepares students for management and leadership positions in the fields of Information Technology, Organizational Leadership, International Organizational Leadership, or Health Administration.

The concentration in **Information Technology** is designed to give students an overview of the IT field and to develop proficiencies in management skills as they seek to enhance their marketability in the workplace. <http://www.tnecampus.org/programs/946/courses>

1. The concentration in **Organizational Leadership** is designed to facilitate the understanding of the nature of organizations and the fundamentals of leadership. <http://www.tnecampus.org/programs/940/courses>
2. The concentration in **International Organizational Leadership** is designed to meet the demands of leadership across geographies, business structures, and cultures. <http://www.tnecampus.org/programs/935/courses>
3. The concentration in **Health Administration** is designed to prepare individuals for an administrative career in the healthcare field. <http://www.tnecampus.org/programs/990/courses>

Please note that each concentration consists of 21 hours of core requirements and 18 hours directly related to your chosen concentration.

Master of Professional Studies (MPS). The 33-hour MPS degree specializations provide you with an opportunity to advance in your chosen career path as it encompasses business, technology, and human development strategies while teaching leadership skills and capabilities, stimulating curiosity, and creating an adaptive background necessary for shaping the direction and future of organizations. The MPS program has six concentrations areas:

- The concentration in **Strategic Leadership** prepares you to lead and adapt in today's rapidly changing professional environment. <http://www.tnecampus.org/programs/1475/courses>
- The concentration **Human Resources Leadership** prepares you to expand your career opportunities in key management roles in the field of human resources. <http://www.tnecampus.org/programs/1481/courses>
- The concentration in **Training & Development** prepares you to manage, deliver, and assess on-site training programs. <http://www.tnecampus.org/programs/1482/courses>
- The concentration in **Healthcare Administration** prepares you for a rewarding and challenging career dedicated to the vital role of enhancing the quality of care, reducing health care costs and addressing health care issues. <https://www.tntech.edu/is/sps/mps/masters-of-professional-studies-healthcare-administration>
- The concentration in **TESOL** can give you the skills and credentials needed to either teach English abroad or to teach second language adult learners in the U.S. (This program is NOT for those planning to teach ESL in public schools within the U.S.) <https://www.tntech.edu/is/sps/mps/tesol>
- The concentration in **Public Safety** can help you secure a career in homeland security, emergency management, law enforcement, corrections, military, federal agencies and more. <http://www.tntech.edu/is/sps/mps/public-safety>

Please note that each program consists of 9 hours of core requirements, 21 hours directly related to your chosen concentration, and a 3-hour culminating project.

Student Success Center

Jeannie Smith, Director/Advisor

Advisors: Lisa Brown, Tammy Keylon

Mission statement: To provide students, especially non-traditional students, quality advisement and serve as a gateway to the University. The Student Success Center will act as a student's liaison to the University, answering their questions and acting as a representative on the student's behalf for the College of Interdisciplinary Studies.

The Student Success Center is the initial point of contact for students who are majoring in an undergraduate program offered through the College of Interdisciplinary Studies. The SSC offers one-on-one advisement to discuss career goals and explore program options in order to develop a plan of study. The SSC provides information on registration as well as the general education requirements and the academic regulations to complete a Bachelor of Science degree at Tennessee Tech University.

Each undergraduate Bachelor of Science degree offered through the College of Interdisciplinary Studies requires 41 credit hours of general education courses (English composition, Literature, Oral Communications, American History, Social and Behavioral Science, Humanities, Mathematics, and Natural Science) and 45 credit hours of upper division courses (3000-4000 level) with at least 12 credit hours at the 4000 level. The remaining hours, 34 credit hours, of any level elective credit to total the requirement of 120 credit hours. Transfer students may transfer up to 60 credit hours from a 2-year community college. At least 60 credit hours must be completed at a 4-year school and at least 30 hours completed at TTU. Students must meet the Undergraduate Degree Requirements at Tennessee Tech University.

WHITSON-HESTER SCHOOL OF NURSING

Professor Hanna, Dean; Associate Professor Duvall, Geist, Hellman, Hurley, Jared, Piras, Russell; Assistant Professors Hall, Howard, Langford, Mabry, Reeves, Turpin; Instructors Barker, Bowman, Butler; Lecturers Fornehed, Roberts, Smith

The Bachelors of Science Nursing degree provides a high-quality professional nursing education with emphasis on meeting health needs of rural and semi-rural communities. Specifically, the program provides opportunities for students to develop knowledge, attitudes, and skills that form the basis for professional nursing practice. The program emphasizes the utilization of the nursing process, which includes critical thinking and decision-making in planning, implementing, and evaluating health care services.

The curriculum is designed to prepare the generalist professional nurse to function in and contribute to the delivery of health care services to individuals, families, and groups in homes, clinics, hospitals, nursing homes, schools and community health care settings. The first two years provide a basic foundation in the physical and social sciences, humanities, nutrition, as well as an introduction to nursing.

The five semesters of upper division comprise the professional nursing major with its focus on the understanding and the application of the nursing theory, nursing process, scientific principles, and the research process to health promotion, disease prevention, and care of the sick. The clinical practica utilize major hospitals, mental health facilities, primary care centers, community and state health departments, private health care offices, and other agencies in the Upper Cumberland region and occasionally in urban settings. Students must meet academic requirements as well as requirements for performance in clinical practice. These requirements are found in the TTU School of Nursing Student Handbook and course syllabi.

Freshmen entering the nursing program (Lower Division Nursing) follow a three to four-semester directed plan of study that prepares them to apply for acceptance into Upper Division Nursing. Students may also apply to the Upper Division Nursing after completing the pre-requisite courses at a liberal arts or junior college.

The TTU School of Nursing has articulation agreements with Tennessee Board of Regents Community Colleges offering "Associate of Applied Science Degree in Nursing" and general education courses required for the TTU School of Nursing curriculum. The detailed agreements are available at www.tntech.edu/transfer.

When two candidates for admission are equally qualified, preference for admission to Upper Division will be given to students at TTU, to transfer students from TBR colleges, and to those who are Tennessee residents.

Candidates apply to the School of Nursing by February 1 for admission to the following Fall Upper Division second-semester Sophomore level or August 1 for acceptance to the following Spring Upper Division second-semester sophomore level. The School of Nursing Admissions and Credits Committee implement the admission process. While candidates are required to have a minimum of 3.0 quality point average (QPA) in all university course work to compete for admission to Upper Division Nursing, it is recommended students maintain at least a 3.2 to be competitive. Also, candidates must complete all required courses in Lower Division prior to entering into Upper Division, fulfill health records documentation requirements and have a cleared background check. Conditional acceptance may be given to candidates completing required Lower Division course work prior to Upper Division entry. Admission to Upper Division Nursing is limited to space available. Students must have a valid Basic Life Support CPR Certification for Health Care Providers prior to or upon entry into Upper Division Nursing.

Students must attain a grade of "C" or better in each required social, physical science, and nursing course. A comprehensive overview of admission, progression, and retention policies for the program are in the School of Nursing Handbook. The Student Handbook can be accessed on the TTU School of Nursing web page <http://www.tntech.edu/nursing>

The baccalaureate degree in nursing at Tennessee Technological University is accredited by the Commission on Collegiate Nursing Education (<http://www.ccnaccreditation.org>), and approved by the Tennessee Board of Nursing. Graduates may be admitted to the examination for license to practice as registered nurses (R.N.) following successful completion of the BSN.

Registered nurses who have a diploma or associate degree and are currently licensed or eligible for licensure in Tennessee; or are concurrently enrolled in an associate degree program, may also enter the School of Nursing for a BSN. A flexible program of study is designed for RN's that offers opportunity for part-time study or online study in a time frame that allows for continued employment. After successful completion of 12 hours of Upper Division nursing course work (NURS 3281 OR NURS 3260 & 3261, NURS 3380, NURS 3430, NURS 3465) RN to BSN (designated as NURN) students will be awarded 32 semester hours of credit (NURS 3250, NURS 3270, NURS 3271, NURS 3280, NURS 3350, NURS 3361, NURS 3370, NURS 3371, NURS 4000, NURS 4001, NURS 4100, NURS 4101).

All Upper Division Nursing students are required to complete and submit the Student Health Form that shows proof of certain immunizations required for clinical practice. Because the School of Nursing seeks to provide a reasonably safe environment for its nursing students and their patients, a student may be required during the course of the program to demonstrate physical and/or emotional fitness to meet the essential requirements of the program. Such essential requirements may include freedom from communicable diseases, the ability to perform certain physical tasks, and suitable emotional fitness. Any appraisal measures used to determine such physical and/or emotional fitness would be in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Upper Division Nursing students are required to purchase liability insurance and will be assessed fees for achievement tests. The School of Nursing supports and enforces the TTU drug free campus/work place policy. Criminal background checks are a requirement for training at most affiliated clinical nursing sites. Additional screening, such as drug screening, may be a requirement for training at some affiliated clinical nursing sites. Based on the results of these checks, an affiliated clinical site may determine not to allow a student's presence at their facility. This could result in the students' inability to complete the program. The THA.com website has links available for requesting this check, a list of available vendors can be provided on request or the student may choose or be required to use the vendor designated by a clinical site to be allowed to train at that site.

Department	Major	Concentrations within Major	Degree
Nursing	Nursing		Bachelor of Science in Nursing

VOLPE LIBRARY

Learning Support Program

Janet F. Whiteaker, Coordinator; Associate Professor Bryant; Assistant Professors Harden, Whiteaker; Instructors Duvier, Lewald

The Learning Support Program provides academic assistance in the form of tutoring, workshops, computerized exercises, individual conferences, etc. Participation in these activities may be required by the University concurrent to enrollment in college-level classes.

Based upon ACT/SAT scores and/or test scores from the ACCUPLACER Placement Exam, students may be required to participate in one or more areas of Learning Support. [TTU currently uses the Next Generation version of College Board's ACCUPLACER, but scores from the ACCUPLACER Classic version are still valid if they are within an acceptable date range, usually 3-5 years.]

Students whose Best ACT-English subject scores are less than 18 and/or whose ACCUPLACER Next Gen Placement Writing Exam Scores are less than 250 [Classic score 93] are required to participate in ENGL 1010 English Composition I + READ 1100 Learning Support Lab for English Composition I.

Students whose Best ACT-Reading subject scores are less than 19 and/or whose ACCUPLACER Next Generation Placement Reading Exam Scores are less than 250 [Classic score 86] are required to take READ 1010 College Reading Improvement [Lecture and Lab, not the same as READ1100]. Students with a reading requirement are not allowed to enroll in courses that have an excessive amount of reading, such as history, psychology, sociology, philosophy, government, political science, etc., until the READ1010 requirement is met. Students whose ACT-Reading subject scores are 17 or 18 may choose one (1) of the high-reading-content courses listed above to take concurrently with READ 1010. Students whose Best ACT-Math subject scores are less than 19 and whose majors require algebra-based mathematics are required to take MATH 1000 [see Math Department for further information]. Students with ACT-Math subject scores less than 17 should take the "L" section of MATH1000. Students with MATH 1000 requirements may not enroll in college-level math, chemistry, or physics until the MATH 1000 requirement has been satisfactorily completed. Students whose majors do not require algebra-based mathematics but whose Best ACT-Math subject scores are less than 19 should enroll in "L" sections of MATH 1010 or MATH 1530.

Learning Support attendance is mandatory. A grade of "C" or higher in the college-level class is required for progression to the next level.

All students who are required to participate in two or more courses with required Learning Support are also required to take UNIV 1030 - Learning Strategies.

INDEPENDENT PROGRAMS

Independent Programs

Cooperative Education
Honors Program
Pre-Law
Department of Military Science
Air Force Reserve Officers Training Corps (AFROTC)

Cooperative Education

Sonja Higgenbotham, Assistant Director

The Cooperative Education Program (Co-op) is a voluntary, independent educational program coordinated through the **Center for Career Development**, located on the third floor of the Roaden University Center. The program integrates formal classroom study with off-campus work experience. There are four co-op study/work plans: **Plan A** (alternating one-year cycles), **Plan B** (alternating semesters), or **Plan C** (simultaneous work and study assignment), and **Plan D** (multiple summers).

Co-op work assignments are available in industry and business, agricultural areas, educational systems, and governmental agencies. Students applying for Co-op are not guaranteed work assignments nor stipulated specific job benefits or salaries. Employers determine the salaries and pay students directly. In regard to permanent employment after graduation, participation in the Co-op Program involves no obligation on the part of the university, student, or employer. Co-op experience is a benefit to students in securing full-time employment following graduation. Many students do return to their co-op employers after graduation.

Co-op students are required to complete the same academic program for graduation as non-co-op students. Students must register and pay a fee for a one-hour Co-op course each semester of their work assignment. Co-op students are classified as **full-time** by the university.

Students on assignment must submit a work report by an established date and will receive a grade of **Satisfactory or Unsatisfactory** (S or U). Students must maintain a 2.0 QPA.

Additional information about the Cooperative Education Program may be obtained by contacting the Center for Career Development.

Honors Program

Dr. Rita Barnes, Director

Tennessee Technological University provides a full Honors Program to stimulate the academically gifted student to achieve his or her full potential. Admission is limited to students with a 3.5 or better cumulative quality point average, or who do exceptionally well on entrance examinations. Those students who complete Honors Program requirements for graduation have "*in cursu honorum*" inscribed on their diplomas and transcripts and are so designated on the graduation program. For further information, contact the director of the Honors Program, and see "Honors Program".

Department of Military Science

U.S. Army Reserve Officers' Training Corps

**LTC Adam Grim, Chairperson and
Professor of Military Science**

Objective. Tennessee Technological University hosts a Senior Division of the Army Reserve Officers' Training Corps (ROTC). The objective of this ROTC is to transform enrolled students into leaders of character that thrive in chaos to serve as Commissioned Officers in the Army Reserve, National Guard, and Active Army. The Lower Division curriculum provides the student with an appreciation of the responsibilities of each American toward National Defense. The Upper Division curriculum develops the world's premier leaders in the United States Army.

Institutional Requirements. Military Science is voluntary for all students. Students incur no military obligation by attending Lower Division Military Science classes during their freshman and/or sophomore years.
Senior ROTC Program

The General Military Science curriculum is in effect at this University. Classes in Military Science for the Upper and the Lower Division are offered during both Fall and Spring Semesters.

The Senior Division ROTC Program includes four years of college work and is divided into (1) Lower Division and (2) Upper Division.

1. The Lower Division (Mission Set (MS) I and MS II) comprises the first two years of college ROTC, and each semester consists of classroom instruction and leadership laboratory. Attendance at Cadet Initial Entry Training (CIET) for five weeks of summer training at Fort Knox may be required in order to start Upper Division. Some field training on weekends is required.
2. The Upper Division (MS III and MS IV) comprises the last two years of college ROTC, and each year consists of three hours per week including classroom instruction and leadership application. Additionally, Physical Training and Leadership Labs are conducted for a total of four hours per week. Attendance at Cadet Leader Course (CLC) of five weeks is required between the junior and senior years. Some field training on weekends is required. The Upper Division culminates in commissioning as a Second Lieutenant in the United States Army upon graduation from the University.

Requirements for Commissioning

In order to receive a commission as a Second Lieutenant, the student must satisfy the following requirements:

1. Successfully complete the Lower and Upper Division course requirements. Lower Division requirements can be satisfied by completing MS 1010, MS 1020, MS 2010, and MS 2020 or substituting previous military experience (See Paragraph: Credits For Previous ROTC Training or Active Military Service). The courses listed below constitute the Upper Division Advanced Course:

MS 3010	Fall Semester
MS 3020	Spring Semester
MS 3040 (Cadet Leaders Course)	Summer
MS 4010	Fall Semester
MS 4020	Spring Semester

In addition to the classes listed above, students enrolled in the Upper Division must take MS 3000-01/MS 4000-01 (Physical Training) each semester.

2. Meet ROTC commissioning requirements, the Army's Height/Weight standards and pass the Army Physical Fitness Test.
3. In addition to the Lower and Upper Division Courses, the student must complete a military history course or two semesters of U.S. History. The student should confer with the Professor of Military Science to determine which course will satisfy this requirement.
4. Meet graduation requirements.

Scholarships and Financial Aid. The ROTC Program offers 4-year, 3-year, and 2-year scholarships to qualified students. Additionally, contracted students receive a monthly financial stipend of \$300-\$500 monthly. The Professor of Military Science offers a limited number of University dorm room scholarships for designated use. Advance course students and all scholarship students receive a monthly subsistence allowance during the school year. Students are also paid for the period of their attendance at the Cadet Initial Entry Training and the Cadet Leaders Course. National Army ROTC scholarship applications can be made at www.armyrotc.com.

Enrollment Requirements. The general requirements for enrollment and continuance in ROTC are: (a) citizen of the United States, (b) physically and mentally qualified, (c) accepted by the university as a full-time student, (d) morally qualified, and (e) meet Army age requirements.

Enrollment in the Upper Division is not open to all students completing the Lower Division but only to those whose ROTC and academic records demonstrate that they will become quality Officers in the Army of the United States.

Students who transfer from colleges or universities without ROTC programs may attend a paid five-week Cadet Initial Entry Training (CIET) to meet the prerequisites of Upper Division. Any students who desire to participate in this program should contact the Military Science Department prior to the end of their first semester.

Disenrollment. Students may be disenrolled for failure to meet physical or academic standards, for disciplinary reasons, or for lack of Officer-like aptitudes. A student once formally enrolled in Upper Division may be discharged from the ROTC program in the event he/she is placed on academic probation by institutional authorities as the result of substandard academic grades.

Credits for Previous ROTC Training or Active Military Science. College credit is allowed for ROTC training successfully completed at other institutions. Students who have completed Basic Training with any military service of the United States, to include Reserves and National Guard, may receive credit for Military Science courses, as jointly determined by the President of the University and the Professor of Military Science. Credit given will not exceed 8 hours of Basic Course credit. A student requesting credit for prior ROTC training or Active Military Service must obtain a certificate from the Professor of Military Science.

Minor in Military Science. A minor in Military Science is available to those students enrolled in and successfully completing six credit hours of Upper Division and a total of 15 elective credit hours of ROTC, Upper or Lower Division.

ROTC Special Activities. The Military Science department has clubs to promote special activities related to ROTC that include the Scabbard and Blade Society, Tech Rangers, Color Guard, Officer Christian Fellowship and Society of American Military Engineers.

Air Force Reserve Officers Training Corps (AFROTC) Currently there is no charge for tuition to take Air Force ROTC. The grade and credit can transfer back for graduation.

The Air Force Reserve Officer Training Corps (AFROTC) provides pre-commission training for college men and women who desire to serve as commissioned officers in the United States Air Force. When combined with the academic disciplines offered at the college level, the program provides the student a broad-based knowledge of management, leadership, and technical skills required for a commission and subsequent active-duty service in the Air Force. Graduates are commissioned as Second Lieutenants and will enter active duty. The main objectives of producing officers through the AFROTC program are (1) to procure officers with a broad educational base; (2) to provide a basic military education for college students; (3) to teach fundamentals and techniques of leadership, management, and decision making; and (4) to develop, in conjunction with other academic disciplines, individual character and attributes required of a commissioned officer in the United States Air Force.

AFROTC Program/Scholarships

Enrolling in AFROTC

For application deadlines go to www.tnstate.edu/afrotc. Students may participate in the Air Force ROTC program in cooperation with Tennessee State University. Call Detachment 790, (615) 963-5980, and ask for a Cross-Town Application. The program provides training and education that will develop skills and attitudes vital to the professional Air Force officer. In this program students are eligible to compete for scholarships (2.5+ GPA) that cover the cost of tuition and textbooks, and provide scholarship cadets with a monthly stipend.

Curriculum

The General Military Course (GMC) is 1 credit hour and is composed of the first four semesters of aerospace studies and is for freshmen and sophomores. The Professional Officer Course (POC) is 3 credit hours and constitutes the final four semesters of AFROTC study for juniors and seniors. The Leadership Lab is also 1 credit hour. Students who participate in Air Force ROTC are jointly enrolled as a TSU student and participate in Aerospace Studies (Air Force ROTC) at TSU. For more information, contact the unit admissions officer at (615) 963-5931/5979 or check our website at www.tnstate.edu/afrotc.

General Benefits

All students enrolled in the AFROTC program are provided textbooks and uniforms at no expense. Professional Officer Course (POC) students (juniors and seniors) and all scholarship students receive a monthly subsistence allowance of up to \$500 tax-free.

Sponsored Activities

Arnold Air Society is a national society of AFROTC cadets who excel in character and academics and exhibit interest in the study of aerospace technology. The group meets at TSU.

Professional Development Training is provided during the summers to cadets interested in enhancing their knowledge of Air Force leadership and management opportunities, increasing their cultural awareness, and learning about specific career specialties.

AFROTC Flight Orientation Program is designed to allow all cadets, regardless of intended career field, the chance to fly in Civil Air Patrol aircraft. Everyone can experience the joy of flight.

Aerospace Studies Courses

Freshman Year: AS 100 - The Foundations of the United States Air Force is a survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.

Sophomore Year: AS 200 - The Evolution of USAF Air and Space Power features topics on Air Force heritage and leaders; introduction to air power through examination of the Air Force Core Functions; and continued application of communication skills. Its purpose is to instill an appreciation of the development and employment of air power and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate.

Junior Year: AS 300 - The United States Air Force Leadership Studies teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors.

Senior Year: AS 400 - National Security Affairs/Preparation for Active Duty is designed for college seniors and gives them the foundation to understand their roles as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level.

CURRICULA

Department of Accounting

(Leading to the Bachelor of Science in Business Administration Degree)

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
MATH 1130 - College Algebra Credit: 3.
Natural Science Credit: 4.¹
Elective Credit: 1.²

DS 2810 - Computer Applications in Business
Credit: 3. or
Humanities/Fine Arts Elective Credit: 3.³

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.
MATH 1830 - Applied Calculus Credit: 3.
Natural Science Credit: 4.¹
Elective Credit: 3.²

DS 2810 - Computer Applications in Business
Credit: 3. or
Humanities/Fine Arts Elective Credit: 3.³

Total: 16

Sophomore Year

First Semester

ACCT 2110 - Principles of Accounting I Credit: 3.
ECON 2010 - Principles of Microeconomics Credit:
3.
HIST 2010 - Early United States History Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

Total: 15

Second Semester

ACCT 2120 - Principles of Accounting II Credit: 3.
ECON 2020 - Principles of Macroeconomics Credit:
3.
HIST 2020 - Modern United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.³
Elective Credit: 3.²

Total: 15

Note:

¹Select two courses from the following: ASTR 1010, ASTR 1020; BIOL 1010, BIOL 1020, BIOL 1123, BIOL 2310, BIOL 2010, BIOL 2020; CHEM 1010, CHEM

1020, CHEM 1110, CHEM 1120; GEOL 1040, GEOL 1045; PHYS 2010, PHYS 2020, PHYS 2110, PHYS 2120 .

²Elective courses are to be selected in consultation with the academic advisor. UBUS 1020 may not be required in some instances. MATH 1000 and READ 1010 does not count as credit toward BSBA degree completion, including as elective. See advisor.

³Select two courses from the University approved Humanities/Fine Arts list .

Curriculum

Junior Year

First Semester

ACCT 3170 - Financial Accounting and Reporting I
Credit: 3.

ACCT 3210 - Cost Accounting Credit: 3.

BMGT 3510 - Management and Organization
Behavior Credit: 3.

DS 3840 - Management Information Systems Credit:
3.

ECON 3610 - Business Statistics I Credit: 3.

Total: 15

Second Semester

ACCT 3180 - Financial Accounting and Reporting II
Credit: 3.

ACCT 3330 - Federal Taxation I Credit: 3.

FIN 3210 - Principles of Managerial Finance Credit:
3.

LAW 2810 - Business Legal Environment and Ethics
Credit: 3.

MKT 3400 - Principles of Marketing Credit: 3.

Total: 15

Senior Year

First Semester

ACCT 3190 - Financial Accounting and Reporting III
Credit: 3.

ACCT 3620 - Auditing I Credit: 3.

BMGT 3720 - Business Communication I Credit: 3.

DS 3520 - Operations Management Credit: 3.

ECON 3320 - Money and Banking Credit: 3. or

ECON 3810 - Intermediate Microeconomics Credit:
3. or

ECON 3820 - Intermediate Macroeconomics Credit:
3.

Total: 15

Second Semester

ACCT Elective Credit: 3.¹

BMGT 4930 (5930) - Business Strategy Credit: 3.

Business Elective Credit: 3.²

DS 3620 - Business Analytics: Data Driven Decision
Making Credit: 3.

Elective Credit: 3.²

Total: 15

Note:

¹ Accounting electives, select one course:
ACCT 4230 (5230) - Advanced Managerial Accounting
ACCT 4340 - Tax Management for Entities
ACCT 4410 - Financial Accounting and Reporting III
ACCT 4530 - Governmental and Not-For-Profit Accounting
ACCT 4600 (5600) - Forensic Accounting and Fraud Auditing
ACCT 4700 (5700) - International Experiences in Accounting
ACCT 4800 - Internship in Accounting
ACCT 4900 - Special Topics

² Accounting majors are required to complete eighteen hours of required upper division accounting courses, a three-hour accounting elective, and a three-hour Communications elective for graduation. Elective courses are to be selected in consultation with the academic advisor.

School of Agriculture

Agriculture, Agribusiness Management

Concentration, B.S.AG.

(Leading to the Bachelor of Science in Agriculture Degree)

Agribusiness Management provides training in economics and business management principles related to production, distribution, and consumption of agricultural goods and services. Graduates enter careers in government agencies, commodity trading, communications, public relations, finance, marketing, sales, and agribusiness management.

Curriculum

Freshman Year

First Semester

AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1.

AGRN 1100 - Plant Science Credit: 3.

ENGL 1010 - English Composition I Credit: 3.

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3. or

MATH 1630 - Finite Mathematics Credit: 3. or

MATH 1830 - Applied Calculus Credit: 3. or

MATH 1910 - Calculus I Credit: 4.

Natural Science Credit: 4.

Total: 14-15

Second Semester

ANS 1200 - Introductory Animal Science Credit: 3.

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

Natural Science Credit: 4.

Humanities/Fine Arts Elective Credit: 3.

Total: 16

Sophomore Year

First Semester

AGBE 2100 - Economics of Agriculture Credit: 3.

AGET 2110 - Agricultural Engineering Technology Credit: 2. and

AGET 2115 - Agricultural Engineering Technology Laboratory Credit: 1.

or

AGET 3110 - Natural Resource Systems Credit: 2.

and

AGET 3115 - Natural Resource Systems Laboratory Credit: 1.

ACCT 2110 - Principles of Accounting I Credit: 3.

ECON 2010 - Principles of Microeconomics Credit: 3.

Total: 12-13

Second Semester

ACCT 2120 - Principles of Accounting II Credit: 3.

AGRN 2000 - Soil and the Environment Credit: 3.

ECON 2020 - Principles of Macroeconomics Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

Total: 12

Junior Year

First Semester

AGBE 3100 - Agricultural Marketing Credit: 3.

AGBE 3220 - Data Acquisition and Computer Analysis in Agribusiness Credit: 3.

AGBE 3400 - Agricultural Finance Credit: 3.

HIST 2010 - Early United States History Credit: 3.

MKT 3400 - Principles of Marketing Credit: 3.

Total: 15

Second Semester

AGBE 3430 - Introduction to Agribusiness Management Credit: 3.

AGBE 3950 - Agribusiness Internship Credit: 3.

Upper Division Agriculture Elective Credit: 3.¹

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Electives Credit: 3.

Total: 15

Senior Year

First Semester

AGBE 4120 (5120) - Natural Resource Economics Credit: 3.

LAW 2810 - Business Legal Environment and Ethics
Credit: 3.

Upper Division Agriculture Elective Credit: 6.¹
Elective Credit: 1-6.

Total:13-19

Second Semester

AGBE 4130 - Agricultural Policy Credit: 3.
AGHE 2022 - Professionalism in Agriculture and
Human Ecology Credit: 1.

AGHE 3000 - (WSL2) Leadership and Service
Credit: 3. or

AGHE 3200 - Study Abroad Exploration Credit: 1-6.
or

AGHE 3275 - Research in Agriculture and Human
Ecology Credit: 3.

AGHE 4500 - Senior Seminar Credit: 1.
Upper Division Business or Economics Elective
Credit: 6.

Total: 14

Note:

A student would be able to qualify for consideration into
the MBA program at Tennessee Tech by completing the
following courses as Business/Economics electives:
MKT 3400, BMGT 3510, FIN 3210, DS 3620, LAW
2810 and ECON 3610.)

¹ No more than one course from any Agriculture
discipline. (AGBE, AGED, AGET, AGHE, AGHT, AGRN
and ANS)

² From University approved list.

**Agriculture, Agricultural Communications
Concentration, B.S.AG.
(Leading to the Bachelor of Science in Agriculture
Degree)**

Agricultural Communications Concentration prepares
students for careers in agricultural communications and
related fields. This curriculum provides an opportunity for
students to combine technical agriculture with
Agricultural Education, Journalism, Professional
Communications, and Business Communications.
Possible career areas include: agricultural information
agencies; newspaper writing and editing; magazine
feature writing and editing; agricultural related
publications; public relations; advertising and sales;
environmental reporting; and Agricultural Extension.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
AGRN 1100 - Plant Science Credit: 3.
MATH 1130 - College Algebra Credit: 3.

CHEM 1010 - Introductory Chemistry I Credit: 4.

AGHE 1020 - Connections in Agriculture and Human
Ecology Credit: 1.

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.
ANS 1200 - Introductory Animal Science Credit: 3.
MATH 1630 - Finite Mathematics Credit: 3.
CHEM 1020 - Introductory Chemistry II Credit: 4.

BIOL 1123 - General Biology II Credit: 4. or

BIOL 2310 - General Botany Credit: 4.

Total: 17

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

AGED 2120 - Introduction to Agricultural and
Extension Education Credit: 3.

HIST 2010 - Early United States History Credit: 3.

JOUR 2200 - Mass Communication in a Changing
Society Credit: 3.

Select three hours from:

ECON 2010 - Principles of Microeconomics Credit:
3.

ECON 2020 - Principles of Macroeconomics Credit:
3.

PSY 1030 - Introduction to Psychology Credit: 3.

SOC 1010 - Introduction to Sociology Credit: 3.

Total: 15

Second Semester

AGRN 2000 - Soil and the Environment Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

DS 2810 - Computer Applications in Business
Credit: 3.

Elective Credit: 1.

HIST 2020 - Modern United States History Credit: 3.

JOUR 2220 - News Reporting and Copy-Editing
Credit: 3.

Total: 16

Junior Year

First Semester

AGET 2110 - Agricultural Engineering Technology
Credit: 2. and

AGET 2115 - Agricultural Engineering Technology
Laboratory Credit: 1.

or

AGET 3110 - Natural Resource Systems Credit: 2.
and

AGET 3115 - Natural Resource Systems Laboratory
Credit: 1.

BMGT 3720 - Business Communication I Credit: 3.
Humanities/Fine Arts Elective Credit: 3.²
Upper Division Agriculture Elective Credit: 3.¹
Elective Credit: 3.

Total: 15

Second Semester

AGBE 2100 - Economics of Agriculture Credit: 3.
AGED 3010 - Professional Leadership Development
Credit: 3.
Humanities/Fine Arts Elective Credit: 3.²
PC 3500 - Rhetoric and the Internet Credit: 3.

Select three hours from:

ECON 2010 - Principles of Microeconomics Credit:
3.
ECON 2020 - Principles of Macroeconomics Credit:
3.
PSY 1030 - Introduction to Psychology Credit: 3.
SOC 1010 - Introduction to Sociology Credit: 3.

Total: 15

Senior Year

First Semester

AGCM 4850 - Internship in Agricultural
Communications Credit: 4.
AGED 4150 (5150) - Communications and Public
Relations in Agricultural and Extension
Education Credit: 3.
Upper Division Agriculture Electives Credit: 6.¹

Total: 13

Second Semester

AGCM 4860 - Internship in Agricultural
Communications Credit: 4.
AGED 4200 (5200) - Methods and Techniques of
Teaching in Agricultural and Extension
Education Credit: 3.
AGED 4300 (5300) - Development of Youth
Programs in Agricultural and Extension
Education Credit: 3.
AGHE 2022 - Professionalism in Agriculture and
Human Ecology Credit: 1.
AGHE 4500 - Senior Seminar Credit: 1.

AGHE 3000 - (WSL2) Leadership and Service
Credit: 3. or
AGHE 3200 - Study Abroad Exploration Credit: 1-6.
or
AGHE 3275 - Research in Agriculture and Human
Ecology Credit: 3.

Total: 15

Note:

¹ No more than one course from any Agriculture
discipline. (AGBE, AGED, AGET, AGHE, AGHT, AGRN
and ANS)

² Select from the University approved list.

Agriculture, Agricultural Education Concentration, B.S.AG.

(Leading to the Bachelor of Science in Agriculture Degree)

Agricultural Education prepares students for careers as
high school agricultural education instructors,
Agricultural Extension agents, and other related fields.
Students learn to evaluate community needs and how to
implement an educational program.

Curriculum

Freshman Year

First Semester

AGRN 1100 - Plant Science Credit: 3.
AGRN 1110 - Plant Science Laboratory Credit: 1.
ENGL 1010 - English Composition I Credit: 3.
MATH 1130 - College Algebra Credit: 3.

BIOL 1123 - General Biology II Credit: 4. or
BIOL 2310 - General Botany Credit: 4.

AGHE 1020 - Connections in Agriculture and Human
Ecology Credit: 1.

Total: 15

Second Semester

AGHE 2022 - Professionalism in Agriculture and
Human Ecology Credit: 1.
ANS 1200 - Introductory Animal Science Credit: 3.
ANS 1210 - Introductory Animal Science Laboratory
Credit: 1.
CHEM 1010 - Introductory Chemistry I Credit: 4.
ENGL 1020 - English Composition II Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3.

Total: 15

Sophomore Year

First Semester

AGBE 2100 - Economics of Agriculture Credit: 3.
AGED 2120 - Introduction to Agricultural and
Extension Education Credit: 3.

AGET 2110 - Agricultural Engineering Technology
Credit: 2. and

AGET 2115 - Agricultural Engineering Technology
Laboratory Credit: 1.

or
AGET 3110 - Natural Resource Systems Credit: 2.
and

AGET 3115 - Natural Resource Systems Laboratory
Credit: 1.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Total: 15

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

EDPY 2210 - Educational Psychology Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.¹

Select one:

AGBE 2010 - World Food and Society Credit: 3.

ECON 2010 - Principles of Microeconomics Credit:
3.

ECON 2020 - Principles of Macroeconomics Credit:
3.

PSY 1030 - Introduction to Psychology Credit: 3.

SOC 1010 - Introduction to Sociology Credit: 3.

Total: 15

Junior Year

First Semester

AGED 4110 - Methods of Teaching Agriscience
Credit: 3.

AGHT 3410 - Plant Propagation Credit: 3.

ANS 3130 - Animal Breeding Credit: 3.

Elective Credit: 1.

FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.

Humanities/Fine Arts Elective Credit: 3.¹

Total: 16

Second Semester

AGED 4200 (5200) - Methods and Techniques of
Teaching in Agricultural and Extension
Education Credit: 3.

AGED 4300 (5300) - Development of Youth
Programs in Agricultural and Extension
Education Credit: 3.

AGRN 2000 - Soil and the Environment Credit: 3.

AGHT 4410 - Nursery Management Credit: 3. or

AGHT 4420 - Greenhouse Management and Crop
Production Credit: 3.

Select one:

AGBE 2010 - World Food and Society Credit: 3.

ECON 2010 - Principles of Microeconomics Credit:
3.

ECON 2020 - Principles of Macroeconomics Credit:
3.

PSY 1030 - Introduction to Psychology Credit: 3.

SOC 1010 - Introduction to Sociology Credit: 3.

Total: 15

Senior Year

First Semester

AGED 4871 - Residency I Credit: 5.

AGED 4872 - Professional Seminar I Credit: 5.

Upper Division Agriculture Elective Credit: 3.²

SPED 3000 - Teaching Persons with Disabilities in
the Regular Classroom Credit: 3.

Total: 16

Second Semester

AGED 4881 - Residency II Credit: 10.

AGED 4882 - Professional Seminar II Credit: 2.

AGHE 4500 - Senior Seminar Credit: 1.

Total: 13

Note:

¹Select from the University approved list.

²No more than one course from any Agriculture
discipline. (AGBE, AGED, AGET, AGHT, AGRN and
ANS)

Agriculture, Agricultural Engineering Technology Concentration, B.S.AG.

**(Leading to the Bachelor of Science in Agriculture
Degree)**

Agricultural Engineering Technology provides basic
training in engineering and agriculture. Students are
prepared to solve problems related to agricultural
production and processing systems and the
management and conservation of agricultural land and
water resources. Graduates pursue careers in food and
fiber handling and processing facilities, farm machinery
sales and service, management of large mechanized
farms, and other sectors of Agricultural Engineering
Technology.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

AGRN 1100 - Plant Science Credit: 3.

AGRN 1110 - Plant Science Laboratory Credit: 1.

CHEM 1010 - Introductory Chemistry I Credit: 4. or

CHEM 1110 - General Chemistry I Credit: 4.

AGHE 1020 - Connections in Agriculture and Human
Ecology Credit: 1.

Select one:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1730 - Pre-calculus Mathematics Credit: 5.

MATH 1830 - Applied Calculus Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.

ANS 1200 - Introductory Animal Science Credit: 3.

ANS 1210 - Introductory Animal Science Laboratory
Credit: 1.

CHEM 1020 - Introductory Chemistry II Credit: 4. or

CHEM 1120 - General Chemistry II Credit: 4.

DS 2810 - Computer Applications in Business
Credit: 3.

Select one:

MATH 1130 - College Algebra Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3.
MATH 1630 - Finite Mathematics Credit: 3.
MATH 1730 - Pre-calculus Mathematics Credit: 5.
MATH 1830 - Applied Calculus Credit: 3.
MATH 1910 - Calculus I Credit: 4.

Total: 17

Sophomore Year

First Semester

AGET 2110 - Agricultural Engineering Technology
Credit: 2.

AGET 2115 - Agricultural Engineering Technology
Laboratory Credit: 1.

AGBE 2100 - Economics of Agriculture Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

Social/Behavioral Science Elective Credit: 3.¹

Select one:

BIOL 1010 - Introduction to Biology Credit: 4.
BIOL 1020 - Diversity of Life Credit: 4.
BIOL 1123 - General Biology II Credit: 4.
BIOL 2310 - General Botany Credit: 4.
PHYS 2010 - Algebra-based Physics I Credit: 4.
PHYS 2020 - Algebra-based Physics II Credit: 4.

Total: 16

Second Semester

AGRN 3000 - Soils Credit: 4.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

MET 2000 - Occupational Safety Credit: 2.
Social/Behavioral Science Elective Credit: 3.¹

Select one:

BIOL 1010 - Introduction to Biology Credit: 4.
BIOL 1020 - Diversity of Life Credit: 4.
BIOL 1123 - General Biology II Credit: 4.
BIOL 2310 - General Botany Credit: 4.
PHYS 2010 - Algebra-based Physics I Credit: 4.
PHYS 2020 - Algebra-based Physics II Credit: 4.

Total: 16

Junior Year

First Semester

ACCT 3720 - Survey of Accounting Credit: 3.

AGET 3620 - Computer-Aided Design in Agriculture
Credit: 3.

Upper Division Agriculture Elective Credit: 3.²

HIST 2010 - Early United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.³

Total: 15

Second Semester

AGET 3110 - Natural Resource Systems Credit: 2.

AGET 3115 - Natural Resource Systems Laboratory
Credit: 1.

AGET 3320 - Small Power Equipment Credit: 2.

AGET 3325 - Small Power Equipment Laboratory
Credit: 1.

Upper Division Agriculture Elective Credit: 3.²

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.³

Total: 15

Senior Year

First Semester

AGET 3520 - Agricultural Spatial Technologies I
Credit: 3.

AGET 4610 (5610) - Greenhouse Structures and
Landscaping Equipment Credit: 3.

Upper Division Agriculture Elective Credit: 3.⁴

BMGT 3510 - Management and Organization
Behavior Credit: 3.

Total: 12

Second Semester

AGET 4220 (5220) - Agricultural Machinery and
Tractors Credit: 2.

AGET 4225 - Agricultural Machinery and Tractors
Laboratory Credit: 1.

AGET 4720 (5720) - Agricultural Processing Credit:
3.

AGHE 2022 - Professionalism in Agriculture and
Human Ecology Credit: 1.

AGHE 4500 - Senior Seminar Credit: 1.

AGHE 3000 - (WSL2) Leadership and Service
Credit: 3. or

AGHE 3200 - Study Abroad Exploration Credit: 1-6.
or

AGHE 3275 - Research in Agriculture and Human
Ecology Credit: 3.

Select one:

AGET 3510 - Agricultural Surveying Credit: 3.

AGET 3560 - Turf Systems Irrigation Design Credit:
2.

AGET 3565 - Turf Systems Irrigation Design
Laboratory Credit: 1.

AGET 4620 (5620) - Agricultural Structures Credit:
3.

AGET 4940 (5940) - Agricultural Engineering
Technology Topics Credit: 1-4.

AGET 4950 (5950) - Agricultural Engineering
Technology Topics Credit: 1-4.

AGET 4960 - Agricultural Engineering Technology
Topics Credit: 1-4.

AGET 4970 - Agricultural Engineering Technology
Topics Credit: 1-4.

AGET 4980 - Agricultural Engineering Technology
Topics Credit: 1-4.

AGR 4920 - Senior Problem Credit: 3.

AGR 3940 - Advanced Internship Credit: 3.

AGR 3950 - Advanced Internship Credit: 3.

AGR 3960 - Advanced Internship Credit: 3.

Total: 12-14

Note:

¹Select two from the University approved
Social/Behavioral Sciences list.

²Select course from any Agriculture discipline.

³Select two courses from the University approved Fine
Arts list.

⁴Select course from any Agriculture discipline.

**Agriculture, Agricultural Science and Management
Concentration, B.S.AG.
(Leading to the Bachelor of Science in Agriculture
Degree)**

Freshman Year

First Semester

AGHE 1020 - Connections in Agriculture and Human
Ecology Credit: 1.

AGRN 1100 - Plant Science Credit: 3.

AGRN 1110 - Plant Science Laboratory Credit: 1.

ENGL 1010 - English Composition I Credit: 3.

MATH 1130 - College Algebra Credit: 3. or

MATH 1530 - Introductory Statistics Credit: 3. or

MATH 1630 - Finite Mathematics Credit: 3. or

MATH 1830 - Applied Calculus Credit: 3.

Natural Science Credit: 4.

Total: 15

Second Semester

ANS 1200 - Introductory Animal Science Credit: 3.

ANS 1210 - Introductory Animal Science Laboratory
Credit: 1.

ENGL 1020 - English Composition II Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Natural Science Credit: 4.

Total: 14

Sophomore Year

First Semester

AGBE 2100 - Economics of Agriculture Credit: 3.

AGET 2110 - Agricultural Engineering Technology
Credit: 2.

AGET 2115 - Agricultural Engineering Technology
Laboratory Credit: 1. or

AGET 3110 - Natural Resource Systems Credit: 2.

AGET 3115 - Natural Resource Systems Laboratory
Credit: 1.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

HIST 2010 - Early United States History Credit: 3.
Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

AGRN 2000 - Soil and the Environment Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2020 - Modern United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
Social/Behavioral Science Elective Credit: 3.

Total: 15

Junior Year

AGHE 3000 - (WSL2) Leadership and Service
Credit: 3. or

AGED 3010 - Professional Leadership Development
Credit: 3.

AGR 3940 - Advanced Internship Credit: 3. or

AGR 3950 - Advanced Internship Credit: 3. or

AGR 3960 - Advanced Internship Credit: 3.

AGRN 3610 - Food Safety in Agritourism - Planning
Credit: 3. or

AGRN 3620 - Food Safety in Agritourism - Growing
and Harvesting Credit: 3. or

AGRN 3630 - Food Safety in Agritourism -
Postharvest Credit: 3.

Primary Ag Concentration Credit: 6.

HEC 3011 - Consumer Economics Credit: 3.

HEC 1030 - Introduction to Nutrition Credit: 2. or

HEC 2020 - Nutrition for Health Sciences Credit: 3.
or

ESS 3000 - Introduction to Environmental Law
Credit: 3.

PSY 3000 - Problem Solving Credit: 3.

First Semester

Second Semester

Total: 33

Directed Social Science Electives - Select nine hours
from the following:

AGBE 4120 (5120) - Natural Resource Economics
Credit: 3. or

MKT 3400 - Principles of Marketing Credit: 3.

PSY 3000 - Problem Solving Credit: 3.

AGRN 3610 - Food Safety in Agritourism - Planning
Credit: 3.

AGRN 3620 - Food Safety in Agritourism - Growing
and Harvesting Credit: 3.

AGRN 3630 - Food Safety in Agritourism -
Postharvest Credit: 3.

HEC 1030 - Introduction to Nutrition Credit: 2. or

HEC 2020 - Nutrition for Health Sciences Credit: 3.

or

ESS 3000 - Introduction to Environmental Law
Credit: 3.

or

Directed Science Electives - Select nine hours from the
following courses:

BIOL 1123 - General Biology II Credit: 4.

BIOL 2310 - General Botany Credit: 4.

BIOL 3130 - General Ecology Credit: 4.

BIOL 3330 - Entomology Credit: 3.

CHEM 3010 - Organic Chemistry I Credit: 4. or

CHEM 3005 - Elementary Organic Chemistry Credit:
4.

GEOL 3010 - Dinosaurs Credit: 3. or

ESS 3710 - Chemistry and the Environment Credit:
3.

Senior Year

First Semester

AGBE 4120 (5120) - Natural Resource Economics
Credit: 3. or

MKT 3400 - Principles of Marketing Credit: 3.

AGHE 4500 - Senior Seminar Credit: 1.

Agriculture Electives (18 hours upper division)
Credit: 6.

Primary Ag Concentration (4000 level) Credit: 6.

Total: 16

Second Semester

Agriculture Electives (18 hours upper division)
Credit: 12.

Primary Ag Concentration (4000 level) Credit: 3.

4950, 4960, 4970 Ag Topics (1 hour if taking AGRN
2310) Credit: 2.

Total: 17

Total:

**Agriculture, Agritourism Concentration, B.S.AG.
(Leading to the Bachelor of Science in Agriculture
Degree)**

Agritourism provides a cutting-edge option for students looking to enter the agricultural industry or return to a home operation and increase the viability of maintaining their cultural heritage. Graduates enter careers as Agritourism enterprise managers, entrepreneurs in their own enterprise, non-formal educators serving as developers of educational activities and programs for Agritourism sites. In addition, some of our students will seek entrance into graduate school to open even more doors through Cooperative Extension and the USDA.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

AGRN 1100 - Plant Science Credit: 3.

CHEM 1010 - Introductory Chemistry I Credit: 4.

ATOOU 2100 - Agritourism Development and
Promotion Credit: 3.

AGHE 1020 - Connections in Agriculture and Human
Ecology Credit: 1.

Select one course from the following:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 17

Second Semester

ENGL 1020 - English Composition II Credit: 3.

ANS 1200 - Introductory Animal Science Credit: 3.

CHEM 1020 - Introductory Chemistry II Credit: 4.

SOC 1010 - Introduction to Sociology Credit: 3.

Select one course from the following:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 16

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

ATOOU 2100 - Agritourism Development and
Promotion Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

AGBE 2100 - Economics of Agriculture Credit: 3.

AGET 2110 - Agricultural Engineering Technology
Credit: 2. and

AGET 2115 - Agricultural Engineering Technology
Laboratory Credit: 1.

or
AGET 3110 - Natural Resource Systems Credit: 2.
and
AGET 3115 - Natural Resource Systems Laboratory
Credit: 1.

Total: 18

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

DS 2810 - Computer Applications in Business
Credit: 3.

ECON 2010 - Principles of Microeconomics Credit:
3.

HIST 2020 - Modern United States History Credit: 3.

MET 2000 - Occupational Safety Credit: 2.

Total: 14

Junior Year

First Semester

ACCT 3720 - Survey of Accounting Credit: 3.
AGRN 3610 - Food Safety in Agritourism - Planning
Credit: 3.

ATOU 3020 - Agriculture and Heritage Based
Tourism Credit: 3.

Directed Ag Electives Credit: 6.

Total: 15

Second Semester

Humanities/Fine Arts Elective Credit: 3.
AGHE 2022 - Professionalism in Agriculture and
Human Ecology Credit: 1.
AGRN 2300 - Soils Credit: 3.
Directed Ag Electives Credit: 3.
Elective Credit: 4-5.

Total: 14-15

Senior Year

First Semester

AGHE 3000 - (WSL2) Leadership and Service
Credit: 3. or
AGHE 3200 - Study Abroad Exploration Credit: 1-6.
or
AGHE 3275 - Research in Agriculture and Human
Ecology Credit: 3.

ATOU 4100 - Direct Marketing for Agriculture and
Human Ecology Credit: 3.

BMGT 3510 - Management and Organization
Behavior Credit: 3.

LAW 2810 - Business Legal Environment and Ethics
Credit: 3.

MKT 3400 - Principles of Marketing Credit: 3.

Total: 15-16

Second Semester

AGHE 4500 - Senior Seminar Credit: 1.
AGR 3950 - Advanced Internship Credit: 3.

ATOU 4200 - Sustainable Tourism as Economic and
Community Development Credit: 3.

MKT 3900 - Entrepreneurship/Small Business
Credit: 3.

MKT 4530 - Consumer Behavior Credit: 3.

Total: 13

Agriculture, Agronomy & Soils Concentration, B.S.AG.

(Leading to the Bachelor of Science in Agriculture Degree)

Agronomy and Soils students study the complex
processes of plants and composition of soil in which they
grow. Areas of interest are crop science and soil
science. Graduates pursue careers as agronomists;
Extension agents; Natural Resources Conservation
Service employees; and herbicide, fertilizer, and seed
industry research and development specialists and sales
representatives.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

AGRN 1100 - Plant Science Credit: 3.

AGRN 1110 - Plant Science Laboratory Credit: 1.

CHEM 1010 - Introductory Chemistry I Credit: 4. or

CHEM 1110 - General Chemistry I Credit: 4.

AGHE 1020 - Connections in Agriculture and Human
Ecology Credit: 1.

Any one:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.

ANS 1200 - Introductory Animal Science Credit: 3.

ANS 1210 - Introductory Animal Science Laboratory
Credit: 1.

CHEM 1020 - Introductory Chemistry II Credit: 4. or

CHEM 1120 - General Chemistry II Credit: 4.

DS 2810 - Computer Applications in Business

Credit: 3.

Any one:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 17

Sophomore Year

First Semester

COMM 2025 - Fundamentals of Communication

Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

AGET 2110 - Agricultural Engineering Technology
Credit: 2. and

AGET 2115 - Agricultural Engineering Technology
Laboratory Credit: 1.

or

AGET 3110 - Natural Resource Systems Credit: 2.
and

AGET 3115 - Natural Resource Systems Laboratory
Credit: 1.

AGBE 2100 - Economics of Agriculture Credit: 3.

AGRN 3100 - Turfgrass Management Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Total: 18

Second Semester

AGHE 2022 - Professionalism in Agriculture and
Human Ecology Credit: 1.

AGRN 3000 - Soils Credit: 4.

BIOL 2310 - General Botany Credit: 4.

HIST 2020 - Modern United States History Credit: 3.

Social/Behavioral Science Elective Credit: 3.³

Total: 15

Junior Year

First Semester

Humanities/Fine Arts Elective Credit: 3.²

AGHT 3030 - Integrated Pest Management Credit:
3.

AGRN 3020 - Crops in Sustainable Systems Credit:
3.

AGRN 3230 - Environmental Soil Science Credit: 4.
or

AGRN 4230 (5230) - Soil Classification Credit: 3.

BIOL 3200 - General Microbiology Credit: 4. or

BIOL 3330 - Entomology Credit: 3.

Total: 15-16

Second Semester

Social/Behavioral Science Elective Credit: 3.³

CHEM 3005 - Elementary Organic Chemistry Credit:
4. or

ESS 3710 - Chemistry and the Environment Credit:
3.

AGRN 4130 (5110) - Forage Crops Production and
Management Credit: 3.

Upper-Division Agriculture Elective Credit: 3.¹

Total: 12-13

Senior Year

First Semester

Humanities/Fine Arts Elective Credit: 3.²

AGHE 4500 - Senior Seminar Credit: 1.

AGRN 4100 (5100) - Weed Science Credit: 3.

Upper-Division Agriculture Elective Credit: 3.¹

Electives Credit: 3-7.

Total: 13-17

Second Semester

AGRN 4210 (5210) - Soil Fertility and Fertilizers
Credit: 3.

Upper-Division Agriculture Elective Credit: 3.¹

AGRN 4120 (5120) - Crop Improvement Credit: 3. or

ANS 3130 - Animal Breeding Credit: 3. or

BIOL 3810 - General Genetics Credit: 4.

AGHE 3000 - (WSL2) Leadership and Service

Credit: 3. or

AGHE 3200 - Study Abroad Exploration Credit: 1-6.

or

AGHE 3275 - Research in Agriculture and Human
Ecology Credit: 3.

Total: 12

Note:

¹No more than one course from any Agriculture
discipline. (AGBE, AGED, AGET, AGHE, AGHT, AGRN
and ANS)

²Select two from University approved list.

³Select two from University approved list.

**Agriculture, Animal & Pre-Veterinary Science
Concentration, Animal Science Option, B.S.AG.
(Leading to the Bachelor of Science in Agriculture
Degree)**

Animal Science deals with all phases of the livestock
and dairy industry. Areas emphasized are nutrition,
physiology, genetics, management technology, quality
control and environmental regulations. Graduates enter
careers in farm management, Extension Service, food
quality control, governmental health agencies, farm
credit institutions, and agricultural sales and
management.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

ANS 1200 - Introductory Animal Science Credit: 3.

ANS 1210 - Introductory Animal Science Laboratory
Credit: 1.

AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1.

BIOL 1123 - General Biology II Credit: 4.

Select one:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.

AGBE 2100 - Economics of Agriculture Credit: 3.

DS 2810 - Computer Applications in Business Credit: 3.

AGRN 1100 - Plant Science Credit: 3.

AGRN 1110 - Plant Science Laboratory Credit: 1.

ANS 2020 - Livestock Management Credit: 3.

Total: 16

Sophomore Year

First Semester

CHEM 1010 - Introductory Chemistry I Credit: 4. or

CHEM 1110 - General Chemistry I Credit: 4.

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

HIST 2010 - Early United States History Credit: 3.

ANS 2110 - Livestock Evaluation Credit: 3.

AGET 2110 - Agricultural Engineering Technology Credit: 2. and

AGET 2115 - Agricultural Engineering Technology Laboratory Credit: 1.

or

AGET 3110 - Natural Resource Systems Credit: 2. and

AGET 3115 - Natural Resource Systems Laboratory Credit: 1.

Total: 16

Second Semester

CHEM 1020 - Introductory Chemistry II Credit: 4. or

CHEM 1120 - General Chemistry II Credit: 4.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2020 - Modern United States History Credit: 3. Elective Credit: 1.

Select one:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

Total: 14

Junior Year

First Semester

AGRN 3000 - Soils Credit: 4.

ANS 3010 - Animal Nutrition Credit: 3.

ANS 3130 - Animal Breeding Credit: 3.

CHEM 3005 - Elementary Organic Chemistry Credit: 4.

Total: 14

Second Semester

Social/Behavioral Science Elective Credit: 3.³

Humanities/Fine Arts Elective Credit: 3.³

ANS 3020 - Feeds and Feeding Credit: 3.

ANS 3140 - Reproduction in Farm Animals Credit: 3.

ANS 3150 - Common Diseases and Parasites of Domestic Animals Credit: 3.

Total: 15

Senior Year

First Semester

Humanities/Fine Arts Elective Credit: 3.

Social/Behavioral Science Elective Credit: 3.

4000-Level ANS Production Course Credit: 3.

BIOL 3200 - General Microbiology Credit: 4. or

BIOL 3230 - Health Science Microbiology Credit: 4.

AGHE 4500 - Senior Seminar Credit: 1.

Total: 14

Second Semester

AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.

AGRN 4130 (5110) - Forage Crops Production and Management Credit: 3.

ANS 3310 - Meat, Dairy and Poultry Products Credit: 3.

4000-Level ANS Production Course Credit: 3.

Ag Upper Division Elective Credit: 3.

AGHE 3000 - (WSL2) Leadership and Service Credit: 3. or

AGHE 3200 - Study Abroad Exploration Credit: 1-6. or

AGHE 3275 - Research in Agriculture and Human Ecology Credit: 3.

Total: 16

Note:

¹Select two math courses from the above list.

²Upper division course from any Agriculture discipline.

³Select two courses from the University approved social/behavioral science list and two courses from the University approved humanities and/or fine arts list (TTU Courses Recommended for the TBR General Education Core).

**Agriculture, Animal & Pre-Veterinary Science
Concentration, Pre-Veterinary Science Option,
B.S.AG.
(Leading to the Bachelor of Science in Agriculture
Degree)**

The Pre-Veterinary Science curriculum is designed to enable a student to enter a College of Veterinary Medicine.

Curriculum

Freshman Year

First Semester

BIOL 1123 - General Biology II Credit: 4.
ENGL 1010 - English Composition I Credit: 3.
CHEM 1110 - General Chemistry I Credit: 4.
ANS 1200 - Introductory Animal Science Credit: 3.
ANS 1210 - Introductory Animal Science Laboratory Credit: 1.
AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1.

Total: 16

Second Semester

CHEM 1120 - General Chemistry II Credit: 4.
ENGL 1020 - English Composition II Credit: 3.
AGRN 1100 - Plant Science Credit: 3.
AGRN 1110 - Plant Science Laboratory Credit: 1.
ANS 2020 - Livestock Management Credit: 3.

Select one:

MATH 1130 - College Algebra Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3.
MATH 1630 - Finite Mathematics Credit: 3.
MATH 1830 - Applied Calculus Credit: 3.

Total: 17

Sophomore Year

First Semester

AGBE 2100 - Economics of Agriculture Credit: 3.
BIOL 2310 - General Botany Credit: 4.
CHEM 3010 - Organic Chemistry I Credit: 4.

AGET 2110 - Agricultural Engineering Technology Credit: 2. and

AGET 2115 - Agricultural Engineering Technology Laboratory Credit: 1.

or

AGET 3110 - Natural Resource Systems Credit: 2. and

AGET 3115 - Natural Resource Systems Laboratory Credit: 1.

Total: 14

Second Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

CHEM 3020 - Organic Chemistry II Credit: 4.

Select one:

MATH 1130 - College Algebra Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3.
MATH 1630 - Finite Mathematics Credit: 3.
MATH 1830 - Applied Calculus Credit: 3.

Total: 13

Junior Year

First Semester

AGRN 3000 - Soils Credit: 4.
ANS 3010 - Animal Nutrition Credit: 3.
BIOL 3140 - Cellular Biology Credit: 4.
PHYS 2010 - Algebra-based Physics I Credit: 4.
ANS 3140 - Reproduction in Farm Animals Credit: 3.

Total: 18

Second Semester

ANS 3130 - Animal Breeding Credit: 3.
ANS 3150 - Common Diseases and Parasites of Domestic Animals Credit: 3.
Humanities/Fine Arts Elective Credit: 3.²
PHYS 2020 - Algebra-based Physics II Credit: 4.
Social/Behavioral Science Elective Credit: 3.

Total: 16

Senior Year

First Semester

AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.
AGHE 4500 - Senior Seminar Credit: 1.
ANS 3330 - Anatomy and Physiology of Livestock Animals Credit: 3.

4000-Level ANS Production Course Credit: 3.

CHEM 4610 (5610) - General Biochemistry I Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Total: 14

Second Semester

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.²

Social/Behavioral Science Elective Credit: 3.²

CHEM 4620 (5620) - General Biochemistry II Credit: 3.

Total: 12

Note:

¹ Select two math courses from the above list.

² Select two courses from the University approved social/behavioral science list and two courses from the University approved humanities and/or fine arts list.

**Agriculture, Environmental Agriscience
Concentration, B.S.AG.
(Leading to the Bachelor of Science in Agriculture
Degree)**

Environmental Agriscience is an environmentally oriented curriculum that offers courses in soils, geology, ecology, hydrology, and biology in an environmental context in addition to traditional agriculture courses. Graduates in the Environmental Agriscience concentration could work in fields such as water quality, reclamation, and developing environmental impact statements. Environmental consulting firms, the EPA, state health departments, the Natural Resources Conservation Service, and the Agricultural Extension Service are a few examples of possible employers.

Curriculum

Freshman Year

First Semester

CHEM 1010 - Introductory Chemistry I Credit: 4. or
CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.
AGRN 1100 - Plant Science Credit: 3.
AGRN 1110 - Plant Science Laboratory Credit: 1.
AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1.

Select one:

MATH 1130 - College Algebra Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3.
MATH 1630 - Finite Mathematics Credit: 3.
MATH 1830 - Applied Calculus Credit: 3.
MATH 1910 - Calculus I Credit: 4.

Total: 15-16

Second Semester

CHEM 1020 - Introductory Chemistry II Credit: 4. or
CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.
ANS 1200 - Introductory Animal Science Credit: 3.
ANS 1210 - Introductory Animal Science Laboratory Credit: 1.
DS 2810 - Computer Applications in Business Credit: 3.

Select one:

MATH 1130 - College Algebra Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3.
MATH 1630 - Finite Mathematics Credit: 3.
MATH 1830 - Applied Calculus Credit: 3.
MATH 1910 - Calculus I Credit: 4.

Total: 17-18

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit: 3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

GEOL 1040 - Physical Geology Credit: 4.
HIST 2010 - Early United States History Credit: 3.
AGBE 2100 - Economics of Agriculture Credit: 3.

AGET 2110 - Agricultural Engineering Technology Credit: 2. and

AGET 2115 - Agricultural Engineering Technology Laboratory Credit: 1.

or

AGET 3110 - Natural Resource Systems Credit: 2. and

AGET 3115 - Natural Resource Systems Laboratory Credit: 1.

Total: 16

Second Semester

AGRN 3000 - Soils Credit: 4.
BIOL 2310 - General Botany Credit: 4.
GEOL 1045 - Earth Environment, Resources and Society Credit: 4.
HIST 2020 - Modern United States History Credit: 3.

Total: 15

Junior Year

First Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or
PC 2500 - Communicating in the Professions Credit: 3.

Humanities/Fine Arts Elective Credit: 3.²

AGRN 3230 - Environmental Soil Science Credit: 4.
AGRN 4220 (5220) - Environmental Soil Chemistry Credit: 3.

Select one:

AGRN 4210 (5210) - Soil Fertility and Fertilizers Credit: 3.
BIOL 4840 (5840) - Limnology Credit: 3.
GEOL 4150 (5150) - Geomorphology Credit: 4.

Total: 16-17

Second Semester

Social/Behavioral Science Elective Credit: 3.³

BIOL 3130 - General Ecology Credit: 4. or
PHYS 2010 - Algebra-based Physics I Credit: 4.

Upper Division Agriculture Elective Credit: 3.¹

Select one:

AGRN 4210 (5210) - Soil Fertility and Fertilizers Credit: 3.
BIOL 4840 (5840) - Limnology Credit: 3.
GEOL 4150 (5150) - Geomorphology Credit: 4.

Total: 13-14

Senior Year

First Semester

Social/Behavioral Science Elective Credit: 3.³

AGRN 4100 (5100) - Weed Science Credit: 3. or
GEOL 3230 - Structural Geology and Tectonics Credit: 4. or
BIOL 3200 - General Microbiology Credit: 4.

AGRN 4230 (5230) - Soil Classification Credit: 3.
Electives Credit: 3-6.

Total: 12-14

Second Semester

Humanities/Fine Arts Elective Credit: 3.²
AGHE 2022 - Professionalism in Agriculture and
Human Ecology Credit: 1.
AGHE 4500 - Senior Seminar Credit: 1.
Upper-Division Agriculture Electives Credit: 6.¹

AGHE 3000 - (WSL2) Leadership and Service
Credit: 3. or
AGHE 3200 - Study Abroad Exploration Credit: 1-6.
or
AGHE 3275 - Research in Agriculture and Human
Ecology Credit: 3.

Total: 14-15

Note:

¹No more than one course from any Agriculture
discipline. (AGBE, AGED, AGET, AGHE, AGHT, AGRN
and ANS)

²Select two from the University approved list.

³Select two from the University approved list.

**Agriculture, Horticulture Concentration, B.S.AG.
(Leading to the Bachelor of Science in Agriculture
Degree)**

Horticulture combines training in the biological and
physical sciences with sound plant cultural practices.
Training is offered in plant identification, production and
handling of greenhouse and nursery crops, and
landscape design and management. Graduates enter
careers in management, production, processing, sales,
education, and governmental agencies related to the
green industries.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

CHEM 1010 - Introductory Chemistry I Credit: 4. or
CHEM 1110 - General Chemistry I Credit: 4.

AGRN 1100 - Plant Science Credit: 3.
AGRN 1110 - Plant Science Laboratory Credit: 1.
AGHE 1020 - Connections in Agriculture and Human
Ecology Credit: 1.

Select one:

MATH 1130 - College Algebra Credit: 3. or
MATH 1530 - Introductory Statistics Credit: 3. or
MATH 1630 - Finite Mathematics Credit: 3. or
MATH 1830 - Applied Calculus Credit: 3. or
MATH 1910 - Calculus I Credit: 4.

Total: 16-17

Second Semester

CHEM 1020 - Introductory Chemistry II Credit: 4. or
CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.
ANS 1200 - Introductory Animal Science Credit: 3.
DS 2810 - Computer Applications in Business
Credit: 3.

Total: 13

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.
Social/Behavioral Science Elective Credit: 3.³
AGBE 2100 - Economics of Agriculture Credit: 3.
BIOL 2310 - General Botany Credit: 4.

Total: 16

Second Semester

AGRN 3000 - Soils Credit: 4.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

HIST 2020 - Modern United States History Credit: 3.
Social/Behavioral Science Elective Credit: 3.³

Total: 13

Junior Year

First Semester

Humanities/Fine Arts Elective Credit: 3.²
AGHT 3400 - Landscape Horticulture Credit: 3.
AGHT 3410 - Plant Propagation Credit: 3.
AGHT 3450 - Dendrology Credit: 3.
Upper-Division Agriculture Elective Credit: 3.¹

Total: 15

Second Semester

AGET 3110 - Natural Resource Systems Credit: 2.
AGET 3115 - Natural Resource Systems Laboratory
Credit: 1.
AGHT 3030 - Integrated Pest Management Credit:
3.
AGHT 3470 - Landscape Plant Materials Credit: 3.
AGHT Elective (may use 1 AGR 3940/AGR
3950/AGR 3960 internship) Credit: 3.

BIOL 3200 - General Microbiology Credit: 4. or
BIOL 3330 - Entomology Credit: 3. or
BIOL 3810 - General Genetics Credit: 4. or
BIOL 4250 (5250) - Economic Botany Credit: 3. or
BIOL 4310 (5310) - Plant Anatomy Credit: 3. or
BIOL 4320 (5320) - Plant Physiology Credit: 3.

Total: 15-16

Senior Year

First Semester

AGET 4610 (5610) - Greenhouse Structures and Landscaping Equipment Credit: 3.

AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.

AGHE 4500 - Senior Seminar Credit: 1.

AGHT 4410 - Nursery Management Credit: 3.

AGHT Elective Credit: 3.

Upper-Division Agriculture Elective Credit: 3.¹

Total: 14

Second Semester

Humanities/Fine Arts Elective Credit: 3.²

AGHT 4420 - Greenhouse Management and Crop Production Credit: 3.

AGRN 4210 (5210) - Soil Fertility and Fertilizers Credit: 3.

Upper-Division Agriculture Elective Credit: 3.¹

AGHE 3000 - (WSL2) Leadership and Service Credit: 3. or

AGHE 3200 - Study Abroad Exploration Credit: 1-6. or

AGHE 3275 - Research in Agriculture and Human Ecology Credit: 3.

Total: 15

Note:

¹ No more than one course from any Agriculture discipline. (AGBE, AGED, AGET, AGHE, AGHT, AGRN and ANS)

² Select two from University approved list.

³ Select two from University approved list.

**Agriculture, Nursery & Landscape Management Concentration, B.S.AG.
(Leading to the Bachelor of Science in Agriculture Degree)**

Nursery and Landscape Management provides students an opportunity to combine agribusiness management training and horticulture training for managerial positions in the nursery and landscaping industries.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1.

AGRN 1100 - Plant Science Credit: 3.

AGRN 1110 - Plant Science Laboratory Credit: 1.

CHEM 1010 - Introductory Chemistry I Credit: 4. or

CHEM 1110 - General Chemistry I Credit: 4.

Select one:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 15-16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

ANS 1200 - Introductory Animal Science Credit: 3.

DS 2810 - Computer Applications in Business Credit: 3.

CHEM 1020 - Introductory Chemistry II Credit: 4. or

CHEM 1120 - General Chemistry II Credit: 4.

Select one:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 16-17

Sophomore Year

First Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

AGBE 2100 - Economics of Agriculture Credit: 3.

ECON 2010 - Principles of Microeconomics Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Total: 15

Second Semester

AGRN 3000 - Soils Credit: 4.

BIOL 2310 - General Botany Credit: 4.

ECON 2020 - Principles of Macroeconomics Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Total: 14

Junior Year

First Semester

ACCT 2110 - Principles of Accounting I Credit: 3.

AGHT 3400 - Landscape Horticulture Credit: 3.

AGHT 3410 - Plant Propagation Credit: 3.

AGHT 3450 - Dendrology Credit: 3. or

AGHT 3470 - Landscape Plant Materials Credit: 3.

Total: 12

Second Semester

Humanities/Fine Arts Elective Credit: 3.

ACCT 2120 - Principles of Accounting II Credit: 3.

AGET 3110 - Natural Resource Systems Credit: 2.

AGET 3115 - Natural Resource Systems Laboratory
Credit: 1.

AGRN 4210 (5210) - Soil Fertility and Fertilizers
Credit: 3.

Total: 12

Senior Year

First Semester

Humanities/Fine Arts Elective Credit: 3.

AGET 4610 (5610) - Greenhouse Structures and
Landscaping Equipment Credit: 3.

AGHE 2022 - Professionalism in Agriculture and
Human Ecology Credit: 1.

AGHE 3000 - (WSL2) Leadership and Service
Credit: 3. or

AGHE 3200 - Study Abroad Exploration Credit: 1-6.
or

AGHE 3275 - Research in Agriculture and Human
Ecology Credit: 3.

AGHE 4500 - Senior Seminar Credit: 1.

Upper-Division Agriculture Elective Credit: 3.¹

Upper-Division Directed Business Elective Credit: 3.²

Total: 17

Second Semester

AGBE 3400 - Agricultural Finance Credit: 3.

AGBE 4030 - Agribusiness Management Credit: 3.

AGHT 4410 - Nursery Management Credit: 3.

Upper-Division Agriculture Elective Credit: 3.¹

Upper-Division Directed Business Elective Credit: 3.²
Elective Credit: 1-3.

Total: 16-18

Note:

¹No more than one course from any Agriculture
discipline. (AGBE, AGED, AGET, AGHE, AGHT, AGRN
and ANS)

²Choose two courses (six hours) from the following:
BMGT 3510 or BMGT 3630, FIN 3210 or FIN 3610,
LAW 4720 or LAW 2810, or MKT 3400, MKT 3430 or
MKT 4500.

**Agriculture, Turfgrass Management Concentration,
B.S.AG.
(Leading to the Bachelor of Science in Agriculture
Degree)**

Turfgrass Management provides basic training in the
science and culture of managing turfgrasses and the
economics and business management principles related
to the turf industry. Graduates are prepared to pursue
careers in management of athletic turf, golf courses,
municipal, industrial, home lawns, and other types of turf
and related business.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

CHEM 1010 - Introductory Chemistry I Credit: 4. or
CHEM 1110 - General Chemistry I Credit: 4.

AGRN 1100 - Plant Science Credit: 3.

AGRN 1110 - Plant Science Laboratory Credit: 1.

AGHE 1020 - Connections in Agriculture and Human
Ecology Credit: 1.

Select one:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1730 - Pre-calculus Mathematics Credit: 5.

MATH 1830 - Applied Calculus Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 15-16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

CHEM 1020 - Introductory Chemistry II Credit: 4. or
CHEM 1120 - General Chemistry II Credit: 4.

ANS 1200 - Introductory Animal Science Credit: 3.

ANS 1210 - Introductory Animal Science Laboratory
Credit: 1.

BIOL 2310 - General Botany Credit: 4.

Select one:

MATH 1130 - College Algebra Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

MATH 1630 - Finite Mathematics Credit: 3.

MATH 1730 - Pre-calculus Mathematics Credit: 5.

MATH 1830 - Applied Calculus Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 18-19

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

ECON 2010 - Principles of Microeconomics Credit:
3.

HIST 2010 - Early United States History Credit: 3.

ACCT 2110 - Principles of Accounting I Credit: 3.

DS 2810 - Computer Applications in Business
Credit: 3.

Total: 15

Second Semester

ECON 2020 - Principles of Macroeconomics Credit:
3.

HIST 2020 - Modern United States History Credit: 3.

ACCT 2120 - Principles of Accounting II Credit: 3.

AGBE 2100 - Economics of Agriculture Credit: 3.

AGET 2110 - Agricultural Engineering Technology
Credit: 2. and

AGET 2115 - Agricultural Engineering Technology
Laboratory Credit: 1.

or

AGET 3110 - Natural Resource Systems Credit: 2.
and

AGET 3115 - Natural Resource Systems Laboratory
Credit: 1.

Total: 15

Junior Year

First Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Humanities/Fine Arts Elective Credit: 3.²

AGRN 3100 - Turfgrass Management Credit: 3.

AGBE 3400 - Agricultural Finance Credit: 3.

Upper-Division Agriculture Elective Credit: 3.³

Total: 15

Second Semester

AGET 3320 - Small Power Equipment Credit: 2.

AGET 3325 - Small Power Equipment Laboratory
Credit: 1.

AGHT 3470 - Landscape Plant Materials Credit: 3.

AGRN 3000 - Soils Credit: 4.

BIOL 3330 - Entomology Credit: 3.

Total: 13

Senior Year

First Semester

Humanities/Fine Arts Elective Credit: 3.²

AGRN 4100 (5100) - Weed Science Credit: 3.

AGBE 4030 - Agribusiness Management Credit: 3.

AGHE 4500 - Senior Seminar Credit: 1.

Directed Business Elective Credit: 3.¹

AGHE 2022 - Professionalism in Agriculture and
Human Ecology Credit: 1.

Total: 14

Second Semester

AGHE 3000 - (WSL2) Leadership and Service
Credit: 3. or

AGHE 3200 - Study Abroad Exploration Credit: 1-6.
or

AGHE 3275 - Research in Agriculture and Human
Ecology Credit: 3.

AGHT 3030 - Integrated Pest Management Credit:
3.

AGRN 4210 (5210) - Soil Fertility and Fertilizers
Credit: 3.

Upper-Division Agriculture Elective Credit: 3.³

Directed Business Elective Credit: 3.¹

Elective Credit: 1.

Total: 16

Note:

¹Choose two courses (six hours) from the following:
LAW 2810, BMGT 3510, BMGT 3630, MKT 3400, MKT
3430 or MKT 4500.

²Choose two from University approved list.

³No more than one course from any Agriculture
discipline. (AGBE, AGED, AGET, AGHE, AGHT, AGRN
and ANS)

School of Art, Craft and Design

**Fine Arts, Art Education Concentration, B.F.A.
(Leading to the B.F.A. in Education Degree with
endorsement, Grades K-12)**

Freshman Year

First Semester

ARED 2020 - Art Education Theory Credit: 2.

ART 1045 - Drawing I Credit: 3.

ART 1340 - Foundations Studio I Credit: 3.

ENGL 1010 - English Composition I Credit: 3.

Natural Science Credit: 4.

FOED 1820 - Introductory Field Experience Credit:
1. or

FOED 1822 - Introductory Field Experience and
Orientation Credit: 1. or
equivalent Credit: 1.¹

Total: 15

Second Semester

ART 1050 - Drawing II Credit: 3.

ART 1350 - Foundations Studio II Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

Natural Science Credit: 4.

Any General Education MATH Credit: 3.

Total: 16

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

Social/Behavioral Science Elective Credit: 3.

ART 2020 - Art History Survey II Credit: 3.

ART 2040 - Printmaking: Relief Credit: 2.

ART 2410 - Painting I, Introduction Credit: 3.

Choose three semester hours from the following:

ART 2510 - Introduction to Clay Credit: 3.

ART 2610 - Introduction to Fibers Credit: 3.

ART 2710 - Introduction to Glass Credit: 3.

ART 2810 - Introduction to Metals Credit: 3.

ART 2910 - Introduction to Woodworking Credit: 3.

Total: 17

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

Social/Behavioral Science Elective Credit: 3.
ART 2000 - Art History Survey I Credit: 3.
ARED 1250 - Digital Technologies in Art Education
Credit: 3.

Total: 16

Junior Year

First Semester

HIST 2010 - Early United States History Credit: 3.
ARED 3155 - Elementary Practicum Credit: 1.
ART 3205 - Methods and Media Credit: 3.
EDPY 2210 - Educational Psychology Credit: 3.
Studio emphasis (from Clay, Glass, Fibers, Metals,
Painting or Wood) Credit: 3.²

Choose three semester hours from the following:

ART 3130 - Art Since 1900 Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 16

Second Semester

HIST 2020 - Modern United States History Credit: 3.
ARED 2050 - STEAM Studio Credit: 2.
ARED 3165 - Secondary Practicum Credit: 1.
Studio emphasis (from Clay, Glass, Fibers, Metals,
Painting or Wood) Credit: 6.²

Choose three semester hours from the following:

ART 3130 - Art Since 1900 Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 15

Senior Year

First Semester

ARED 4871 - Residency I Credit: 5.
ARED 4872 - Professional Seminar I Credit: 5.
Studio emphasis (from Clay, Glass, Fibers, Metals,
Painting or Wood) Credit: 3.²

Total: 13

Second Semester

ARED 4881 - Residency II Credit: 10.
ARED 4882 - Professional Seminar II Credit: 2.

Total: 12

Note:

¹ This course not included in 120-hour curriculum.

² Studio Emphasis hours can be divided between two
media.

³ Must submit evidence of current First Aid/CPR
Training.

In the BFA concentration in art education only, the
general education core requirement in humanities and/or

fine arts is fulfilled by ART 2000 - Art History Survey
I and ART 2020 - Art History Survey II, in combination
with the approved literature course selected by the
student for the total of the 9-credit hour requirement.

Fine Arts, Clay Concentration, B.F.A. (Leading to the Bachelor of Fine Arts Degree)

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
Any General Education Math Credit: 3.
ART 1045 - Drawing I Credit: 3.
ART 1340 - Foundations Studio I Credit: 3.

UNIV 1020 - First-Year Connections Credit: 1. or
equivalent Credit: 1.¹

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.
Social/Behavioral Science Elective Credit: 3.
ART 1350 - Foundations Studio II Credit: 3.
ART 2510 - Introduction to Clay Credit: 3.

ART 1050 - Drawing II Credit: 3. or
ART 2330 - Technical Drawing Credit: 3. or
ART 2340 - Computer Aided Drafting for the Artist
Credit: 3.

Total: 15

Sophomore Year

First Semester

HIST 2010 - Early United States History Credit: 3.
Natural Science Credit: 4.
ART 1250 - Introduction to Digital Imaging Credit: 3.
ART 3510 - Clay on the Wheel Credit: 3.
ART 2020 - Art History Survey II Credit: 3.

Total: 16

Second Semester

Natural Science Credit: 4.
ART 3511 - Intermediate Hand-building Credit: 3.
ART 3521 - Advanced Clay Studio Credit: 3.
ART 3130 - Art Since 1900 Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.
ART 2610 - Introduction to Fibers Credit: 3.
ART 2710 - Introduction to Glass Credit: 3.
ART 2810 - Introduction to Metals Credit: 3.
ART 2910 - Introduction to Woodworking Credit: 3.

Total: 16

Junior Year

First Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

HIST 2020 - Modern United States History Credit: 3.
ART 3520 - Advanced Clay Studio Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.
ART 2610 - Introduction to Fibers Credit: 3.
ART 2710 - Introduction to Glass Credit: 3.
ART 2810 - Introduction to Metals Credit: 3.
ART 2910 - Introduction to Woodworking Credit: 3.

Select one:

ART 2000 - Art History Survey I Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 15

Second Semester

ENGL 2130 - Topics in American Literature Credit:
3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

ART Studio Electives Credit: 2³

ART 3099 - Professional Practices for the Artist
Credit: 3.

ART 3521 Advanced Clay Studio Credit: 3.

ART 3520 - Advanced Clay Studio Credit: 3. or
ART 3521 - Advanced Clay Studio Credit: 3. or
ART 3530 - Independent Studies in Clay Credit: 1, 2,
3. (Three credits required)

Select one:

ART 2000 - Art History Survey I Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 17

Senior Year

First Semester

ART Studio and/or Guided Elective Credit: 4.³
ART 4511 - Senior Thesis in Clay I Credit: 3.
ART 4512 - Senior Thesis in Clay II Credit: 3.
Social Behavioral Science Elective Credit: 3.

Total: 13

Second Semester

ART Studio and/or Guided Elective Credit: 4.³
ART 4513 - Senior Thesis in Clay III Credit: 3.
ART 4514 - Senior Thesis in Clay IV Credit: 3.
Humanities/Fine Arts Elective Credit: 3.

Total: 13

Note:

¹This course not included in 120-hour curriculum.

²Majors in BFA concentrations in Clay, Fibers, Glass, Metals, Painting and Wood must have C or above in all art courses applied to fulfill requirements in the major. Art courses must also have the grade of C or above in order to serve as prerequisites for other art courses and to be counted as completed in the sophomore assessment for recommendation to advance in the concentration.

³Art studio electives are defined as any art studio course not applied to other requirements. Allow up to 6 credits of guided electives including courses outside the Art curriculum, such as WEBD 1500, MKT 3400, MKT 3900.

**Fine Arts, Design Concentration, Digital Media
Emphasis, B.F.A.
(Leading to the Bachelor of Fine Arts Degree)**

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
MATH Credit: 3.
ART 1250 - Introduction to Digital Imaging Credit: 3.
ART 1340 - Foundations Studio I Credit: 3.

UNIV 1020 - First-Year Connections Credit: 1. or
Equivalent Credit: 1.¹

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.
Social/Behavioral Science Elective Credit: 3.
ART 1045 - Drawing I Credit: 3.
ART 2210 - Introduction to Design Credit: 3.
ART 2220 - Typography, Text and Image Credit: 3.

Total: 15

Sophomore Year

First Semester

HIST 2010 - Early United States History Credit: 3.
Natural Science Credit: 4.
ART 2020 - Art History Survey II Credit: 3.
ART 3210 - Design Studio Credit: 3.

ART 1050 - Drawing II Credit: 3. or
ART 2340 - Computer Aided Drafting for the Artist
Credit: 3.

Total: 16

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

Natural Science Credit: 4.

ART 3130 - Art Since 1900 Credit: 3.

ART 1350 - Foundations Studio II Credit: 3.

ART 3220 - Design Studio II Credit: 3.

Total: 16

Junior Year

First Semester

ART 3230 - Design Studio III Credit: 3.

ART 3240 - Illustration and Visual Narrative Credit:
3.

Art Studio or Guided Elective Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.

ART 2510 - Introduction to Clay Credit: 3.

ART 2610 - Introduction to Fibers Credit: 3.

ART 2710 - Introduction to Glass Credit: 3.

ART 2810 - Introduction to Metals Credit: 3.

ART 2910 - Introduction to Woodworking Credit: 3.

Select one:

ART 2000 - Art History Survey I Credit: 3.

ART 3150 - History of Crafts I Credit: 3.

ART 3160 - History of Crafts II Credit: 3.

ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.

ART 4100 - Art Tour Credit: 3.

ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 15

Second Semester

HIST 2020 - Modern United States History Credit: 3.

Art Studio or Guided Elective Credit: 3.

ART 3250 - Independent Studies in Design Credit:
1-3. or

ART 3251 - Independent Studies in Design Credit:
1-3. or

ART 4240 - Special Problems in Design Credit: 4.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.

ART 2510 - Introduction to Clay Credit: 3.

ART 2610 - Introduction to Fibers Credit: 3.

ART 2710 - Introduction to Glass Credit: 3.

ART 2810 - Introduction to Metals Credit: 3.

ART 2910 - Introduction to Woodworking Credit: 3.

Select one:

ART 2000 - Art History Survey I Credit: 3.

ART 3150 - History of Crafts I Credit: 3.

ART 3160 - History of Crafts II Credit: 3.

ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.

ART 4100 - Art Tour Credit: 3.

Total: 16

Senior Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

Social/Behavioral Science Elective Credit: 3.

Art Studio or Guided Elective Credit: 3.

ART 4211 - Design Practicum Credit: 3.

ART 4231 - Design Portfolio I Credit: 3.

Total: 15

Second Semester

Humanities/Fine Arts Elective Credit: 3.

ART 4221 - Design Internship Credit: 3.

ART 4232 - Design Portfolio II Credit: 3.

Art Studio or Guided Elective Credit: 3.

Total: 12

Note:

¹ This course is not included in the 120-hour curriculum and does not apply to transfer students.

² Majors in BFA concentration in design must have C or above in all art courses applied to fulfill requirements in the major. Art courses must also have the grade of C or above in order to serve as prerequisites for other art courses and to be counted as completed in the sophomore assessment for recommendation to advance in the concentration.

³ Art studio electives and guided electives shall total 12 credit hours.

From 3 credits to 9 credits may be selected from art studio electives, defined as any art studio course not applied to other requirements.

From 3 credits to 9 credits may be selected from the following list of guided electives -- COMM 1010, COMM 1020, COMM 3000, COMM 3120, WEBD 1500, WEBD 2300, WEBD 4950, JOUR 2200, JOUR 2220, JOUR 3350, JOUR 3370, JOUR 3740, JOUR 4360, MKT 3200, MKT 3400, MKT 3430, MKT 3900, PC 3250.

Fine Arts, Fibers Concentration, B.F.A. (Leading to the Bachelor of Fine Arts Degree)

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

ART 1045 - Drawing I Credit: 3.

ART 1340 - Foundations Studio I Credit: 3.

UNIV 1020 - First-Year Connections Credit: 1. or
Equivalent Credit: 3.¹

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.

Social/Behavioral Science Elective Credit: 3.

ART 1350 - Foundations Studio II Credit: 3.

ART 2610 - Introduction to Fibers Credit: 3.

ART 1050 - Drawing II Credit: 3. or
ART 2330 - Technical Drawing Credit: 3. or
ART 2340 - Computer Aided Drafting for the Artist
Credit: 3.

Total: 15

Sophomore Year

First Semester

ART 1250 - Introduction to Digital Imaging Credit: 3.
ART 2020 - Art History Survey II Credit: 3.

ART 3610 - Weaving I Credit: 3. or
ART 3620 - Surface Design I Credit: 3. or
ART 3640 - 3D Structures in Fibers Credit: 3.

HIST 2010 - Early United States History Credit: 3.
Natural Science Credit: 4.

Total: 16

Second Semester

Natural Science Credit: 4.
Art Studio or Guided Elective Credit: 3.³
ART 3130 - Art Since 1900 Credit: 3.

ART 3610 - Weaving I Credit: 3. or
ART 3620 - Surface Design I Credit: 3. or
ART 3640 - 3D Structures in Fibers Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.
ART 2510 - Introduction to Clay Credit: 3.
ART 2710 - Introduction to Glass Credit: 3.
ART 2810 - Introduction to Metals Credit: 3.
ART 2910 - Introduction to Woodworking Credit: 3.

Total: 16

Junior Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

ART 3610 - Weaving I Credit: 3. or
ART 3620 - Surface Design I Credit: 3. or
ART 3640 - 3D Structures in Fibers Credit: 3.

ART 3650 - Fiber Art Studio I Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.
ART 2510 - Introduction to Clay Credit: 3.
ART 2710 - Introduction to Glass Credit: 3.
ART 2810 - Introduction to Metals Credit: 3.
ART 2910 - Introduction to Woodworking Credit: 3.

Select one:

ART 2000 - Art History Survey I Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.

ART 4100 - Art Tour Credit: 3.

ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 15

Second Semester

ART 3099 - Professional Practices for the Artist
Credit: 3.

ART 3611 - Weaving II Credit: 3. or
ART 3621 - Surface Design II Credit: 3. or
ART 3630 - Independent Studies in Fibers Credit: 1,
2, 3. (Three credits required) or
ART 3631 - Independent Studies in Fibers Credit: 1,
2, 3. (Three credits required) or
ART 3641 - 3D Structures in Fibers II Credit: 3.

ART 3651 - Fiber Art Studio II Credit: 3.
HIST 2020 - Modern United States History Credit: 3.

Select one:

ART 2000 - Art History Survey I Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 15

Senior Year

First Semester

Art Studio and/or Guided Elective Credit: 3.³
ART 4611 - Senior Thesis in Fibers I Credit: 3.
ART 4612 - Senior Thesis in Fibers II Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

Art Studio and/or Guided Elective Credit: 4.³
ART 4613 - Senior Thesis in Fibers III Credit: 3.
ART 4614 - Senior Thesis in Fibers IV Credit: 3.
Humanities/Fine Arts Elective Credit: 3.

Total: 13

Note:

¹This course not included in 120-hour curriculum.

²Majors in BFA concentrations in Clay, Fibers, Glass, Metals, Painting, and Wood must have C or above in all art courses applied to fulfill requirements in the major. Art courses must also have the grade of C or above in order to serve as prerequisites for other art courses and to be counted as completed in the sophomore assessment for recommendation to advance in the concentration.

³ Art studio electives are defined as any art studio course not applied to other requirements. Allow up to 6 credits of guided electives including courses outside the Art curriculum, such as WEBD 1500, MKT 3400, MKT 3900.

**Fine Arts, Glass Concentration, B.F.A.
(Leading to the Bachelor of Fine Arts Degree)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
MATH Credit: 3.
ART 1045 - Drawing I Credit: 3.
ART 1340 - Foundations Studio I Credit: 3.

UNIV 1020 - First-Year Connections Credit: 1. or
equivalent Credit: 1.¹

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.
Social/Behavioral Science Elective Credit: 3.
ART 1350 - Foundations Studio II Credit: 3.
ART 2710 - Introduction to Glass Credit: 3.

ART 1050 - Drawing II Credit: 3. or
ART 2330 - Technical Drawing Credit: 3. or
ART 2340 - Computer Aided Drafting for the Artist
Credit: 3.

Total: 15

Sophomore Year

First Semester

ART 1250 - Introduction to Digital Imaging Credit: 3.
ART 2020 - Art History Survey II Credit: 3.
ART 3710 - Intermediate Glass Studio Credit: 3.
HIST 2010 - Early United States History Credit: 3.
Natural Science Credit: 4.

Total: 16

Second Semester

Natural Science Credit: 4.
ART 3130 - Art Since 1900 Credit: 3.
ART 3711 - Intermediate Glass Studio Credit: 3.

ART 3740 - Warm Glass Processes Credit: 3. or
ART 3750 - Production Processes in Glass Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.
ART 2510 - Introduction to Clay Credit: 3.
ART 2610 - Introduction to Fibers Credit: 3.
ART 2810 - Introduction to Metals Credit: 3.
ART 2910 - Introduction to Woodworking Credit: 3.

Total: 16

Junior Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

ART 3720 - Advanced Glass Studio Credit: 3.

ART 3730 - Independent Studies in Glass Credit: 1,
2, 3.
(Three credits required)

or

ART 4740 - Special Problems in Glass Credit: 1, 2,
3. (Three credits required)

Select one:

ART 2410 - Painting I, Introduction Credit: 3.
ART 2510 - Introduction to Clay Credit: 3.
ART 2610 - Introduction to Fibers Credit: 3.
ART 2810 - Introduction to Metals Credit: 3.
ART 2910 - Introduction to Woodworking Credit: 3.

Select one:

ART 2000 - Art History Survey I Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 15

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

HIST 2020 - Modern United States History Credit: 3.
Art Studio and/or Guided Elective Credit: 2.³

ART 3099 - Professional Practices for the Artist
Credit: 3.

ART 3721 - Advanced Glass Studio Credit: 3.

Select one:

ART 2000 - Art History Survey I Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 17

Senior Year

First Semester

Art Studio and/or Guided Elective Credit: 4.³
ART 4711 - Senior Thesis in Glass I Credit: 3.
ART 4712 - Senior Thesis in Glass II Credit: 3.
Social/Behavioral Science Elective Credit: 3.

Total: 13

Second Semester

Art Studio and/or Guided Elective Credit: 4.³

ART 4713 - Senior Thesis in Glass III Credit: 3.
ART 4714 - Senior Thesis in Glass IV Credit: 3.
Humanities/Fine Arts Elective Credit: 3.

Total: 13

Note:

¹This course not included in 120-hour curriculum.

²Majors in BFA concentrations in Clay, Fibers, Glass, Metals, Painting, and Wood must have C or above in all art courses applied to fulfill requirements in the major. Art courses must also have the grade of C or above in order to serve as prerequisites for other art courses and to be counted as completed in the sophomore assessment for recommendation to advance in the concentration.

³Art studio electives are defined as any art studio course not applied to other requirements. Allow up to 6 credits of guided electives including courses outside the Art curriculum, such as WEBD 1500, MKT 3400, MKT 3900.

Fine Arts, Metals Concentration, B.F.A. (Leading to the Bachelor of Fine Arts Degree)

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
MATH Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
ART 1045 - Drawing I Credit: 3.
ART 1340 - Foundations Studio I Credit: 3.

UNIV 1020 - First-Year Connections Credit: 1. or equivalent Credit: 1.¹

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.
Social/Behavioral Science Elective Credit: 3.
ART 1350 - Foundations Studio II Credit: 3.
ART 2810 - Introduction to Metals Credit: 3.

ART 1050 - Drawing II Credit: 3. or
ART 2330 - Technical Drawing Credit: 3. or
ART 2340 - Computer Aided Drafting for the Artist Credit: 3.

Total: 15

Sophomore Year

First Semester

ART 1250 - Introduction to Digital Imaging Credit: 3.
ART 2020 - Art History Survey II Credit: 3.
ART 3810 - Metals Studio—Metalsmithing Credit: 3.
HIST 2010 - Early United States History Credit: 3.
Natural Science Credit: 4.

Total: 16

Second Semester

ART 3820 - Metals Studio—Blacksmithing Credit: 3.
ART 3830 - Independent Studies in Metals Credit: 1, 2, 3. (Three credit required)

Natural Science Credit: 4.

ART 3130 - Art Since 1900 Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.
ART 2510 - Introduction to Clay Credit: 3.
ART 2610 - Introduction to Fibers Credit: 3.
ART 2710 - Introduction to Glass Credit: 3.
ART 2910 - Introduction to Woodworking Credit: 3.

Total: 16

Junior Year

First Semester

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

ART 3811 - Metals Studio—Metalsmithing Credit: 3. or (Three credit required)

ART 3821 - Metals Studio—Blacksmithing Credit: 3.

ART 4840 - Special Problems in Metals Credit: 1, 2, 3. (Three credits required)

Select one:

ART 2000 - Art History Survey I Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4040 - Art Criticism and Aesthetic Understanding Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.
ART 2510 - Introduction to Clay Credit: 3.
ART 2610 - Introduction to Fibers Credit: 3.
ART 2710 - Introduction to Glass Credit: 3.
ART 2910 - Introduction to Woodworking Credit: 3.

Total: 15

Second Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

ART 3099 - Professional Practices for the Artist Credit: 3.

Art Studio and/or Guided Elective Credit: 2.³

ART 3811 - Metals Studio—Metalsmithing Credit: 3. or (Three credit required)

ART 3821 - Metals Studio—Blacksmithing Credit: 3.

Select one:

ART 2000 - Art History Survey I Credit: 3.
ART 3150 - History of Crafts I Credit: 3.

ART 3160 - History of Crafts II Credit: 3.
ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 17

Senior Year

First Semester

Art Studio and/or Guided Elective Credit: 4.³
ART 4811 - Senior Thesis in Metals I Credit: 3.
ART 4812 - Senior Thesis in Metals II Credit: 3.
Social/Behavioral Science Elective Credit: 3.

Total: 13

Second Semester

Art Studio and/or Guided Elective Credit: 4.³
ART 4813 - Senior Thesis in Metals III Credit: 3.
ART 4814 - Senior Thesis in Metals IV Credit: 3.
Humanities/Fine Arts Elective Credit: 3.

Total: 13

Note:

¹This course not included in 120-hour curriculum.

²Majors in BFA concentrations in Clay, Fibers, Glass, Metals, Painting, and Wood must have C or above in all art courses applied to fulfill requirements in the major. Art courses must also have the grade of C or above in order to serve as prerequisites for other art courses and to be counted as completed in the sophomore assessment for recommendation to advance in the concentration.

³Art studio electives are defined as any art studio course not applied to other requirements. Allow up to 6 credits of guided electives including courses outside the Art curriculum, such as WEBD 1500, MKT 3400, MKT 3900.

Fine Arts, Painting Concentration, B.F.A. (Leading to the Bachelor of Fine Arts Degree)

Freshman Year

First Semester

ART 1045 - Drawing I Credit: 3.
ART 1340 - Foundations Studio I Credit: 3.
ENGL 1010 - English Composition I Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
MATH Credit: 3.

UNIV 1020 - First-Year Connections Credit: 1. or
Equivalent Credit: 1.¹

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.
ART 1050 - Drawing II Credit: 3.
ART 1350 - Foundations Studio II Credit: 3.
ART 2410 - Painting I, Introduction Credit: 3.

Social/Behavioral Science Elective Credit: 3.

Total: 15

Sophomore Year

First Semester

ART 1250 - Introduction to Digital Imaging Credit: 3.
ART 2020 - Art History Survey II Credit: 3.
ART 3410 - Painting II Credit: 3.
HIST 2010 - Early United States History Credit: 3.
Natural Science Credit: 4.

Total: 16

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

Natural Science Credit: 4.

ART 3130 - Art Since 1900 Credit: 3.

ART 3420 - Painting III Credit: 3.

Select one:

ART 2510 - Introduction to Clay Credit: 3.
ART 2610 - Introduction to Fibers Credit: 3.
ART 2710 - Introduction to Glass Credit: 3.
ART 2810 - Introduction to Metals Credit: 3.
ART 2910 - Introduction to Woodworking Credit: 3.

Total: 16

Junior Year

First Semester

HIST 2020 - Modern United States History Credit: 3.
ART 3421 - Painting IV Credit: 3.
ART 3430 - Independent Studies in Painting I Credit:
3.

Select one:

ART 3310 - Drawing III Credit: 3.
ART 3320 - Figure Studies Credit: 3.
ART 3421 - Painting IV Credit: 3.
ART 3430 - Independent Studies in Painting I Credit:
3.
ART 4310 - Independent Studies in Drawing I Credit:
3.

Select one:

ART 2000 - Art History Survey I Credit: 3.
ART 3150 - History of Crafts I Credit: 3.
ART 3160 - History of Crafts II Credit: 3.
ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.
ART 4100 - Art Tour Credit: 3.
ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 15

Second Semester

ENGL 2130 - Topics in American Literature Credit:
3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

ART 3099 - Professional Practices for the Artist
Credit: 3.

ART 3431 - Independent Studies in Painting II
Credit: 3.

ART Studio and/or Guided Elective Credit: 2.³

Select one:

ART 2000 - Art History Survey I Credit: 3.

ART 3150 - History of Crafts I Credit: 3.

ART 3160 - History of Crafts II Credit: 3.

ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.

ART 4100 - Art Tour Credit: 3.

ART 4170 - Ancient Mesoamerican Art Credit: 3.

Select one:

ART 2510 - Introduction to Clay Credit: 3.

ART 2610 - Introduction to Fibers Credit: 3.

ART 2710 - Introduction to Glass Credit: 3.

ART 2810 - Introduction to Metals Credit: 3.

ART 2910 - Introduction to Woodworking Credit: 3.

Total: 17

Senior Year

First Semester

Art Studio and/or Guided Elective Credit: 4.³

ART 4411 - Senior Thesis in Painting I Credit: 3.

ART 4412 - Senior Thesis in Painting II Credit: 3.

Social/Behavioral Science Elective Credit: 3.

Total: 13

Second Semester

Art Studio and/or Guided Elective Credit: 4³

ART 4413 - Senior Thesis in Painting III Credit: 3.

ART 4414 - Senior Thesis in Painting IV Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Total: 13

Note:

¹This course not included in 120-hour curriculum.

²Majors in BFA concentrations in Clay, Fibers, Glass, Metals, Painting and Wood must have C or above in all art courses applied to fulfill requirements in the major. Art courses must also have the grade of C or above in order to serve as prerequisites for other art courses and to be counted as completed in the sophomore assessment for recommendation to advance in the concentration.

³Art studio electives are defined as any art studio course not applied to other requirements. Up to six hours guided electives may be chosen from: WEBD 1500, MKT 3400, MKT 3900.

Fine Arts, Wood Concentration, B.F.A. (Leading to the Bachelor of Fine Arts Degree)

Curriculum

Freshman Year

First Semester

ART 1045 - Drawing I Credit: 3.

ART 1340 - Foundations Studio I Credit: 3.

ENGL 1010 - English Composition I Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

MATH Credit: 3.

UNIV 1020 - First-Year Connections Credit: 1. or
equivalent Credit: 1.¹

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

ART 1350 - Foundations Studio II Credit: 3.

ART 2330 - Technical Drawing Credit: 3.

ART 2910 - Introduction to Woodworking Credit: 3.

Social/Behavioral Science Elective Credit: 3.

Total: 15

Sophomore Year

First Semester

ART 1250 - Introduction to Digital Imaging Credit: 3.

ART 2020 - Art History Survey II Credit: 3.

ART 3910 - Intermediate Wood Studio Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Natural Science Credit: 4.

Total: 16

Second Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

Natural Science Credit: 4.

ART 3130 - Art Since 1900 Credit: 3.

ART 3911 - Intermediate Wood Studio Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.

ART 2510 - Introduction to Clay Credit: 3.

ART 2610 - Introduction to Fibers Credit: 3.

ART 2710 - Introduction to Glass Credit: 3.

ART 2810 - Introduction to Metals Credit: 3.

Total: 16

Junior Year

First Semester

HIST 2020 - Modern United States History Credit: 3.

ART 3920 - Advanced Wood Studio Credit: 3.

ART 3930 - Independent Studies in Woodworking
Credit: 1, 2, 3. (Three credits required) or

ART 4940 - Special Problems in Wood Credit: 1, 2,
3. (Three credits required)

Select one:

ART 2000 - Art History Survey I Credit: 3.

ART 3150 - History of Crafts I Credit: 3.

ART 3160 - History of Crafts II Credit: 3.

ART 4040 - Art Criticism and Aesthetic
Understanding Credit: 3.

ART 4100 - Art Tour Credit: 3.

ART 4170 - Ancient Mesoamerican Art Credit: 3.

Select one:

ART 2410 - Painting I, Introduction Credit: 3.

ART 2510 - Introduction to Clay Credit: 3.

ART 2610 - Introduction to Fibers Credit: 3.

ART 2710 - Introduction to Glass Credit: 3.

ART 2810 - Introduction to Metals Credit: 3.

Total: 15

Second Semester

COMM 2025 - Fundamentals of Communication

Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

ART 3921 - Advanced Wood Studio Credit: 3.

ART 3940 - Woodturning Credit: 3.

ART 3099 - Professional Practices for the Artist
Credit: 3.

ART Studio Electives Credit: 2.³

Select one:

ART 2000 - Art History Survey I Credit: 3.

ART 3150 - History of Crafts I Credit: 3.

ART 3160 - History of Crafts II Credit: 3.

ART 4040 - Art Criticism and Aesthetic

Understanding Credit: 3.

ART 4100 - Art Tour Credit: 3.

ART 4170 - Ancient Mesoamerican Art Credit: 3.

Total: 17

Senior Year

First Semester

ART Studio or Guided Elective Credit: 4.³

ART 4911 - Senior Thesis in Wood I Credit: 3.

ART 4912 - Senior Thesis in Wood II Credit: 3,

Social/Behavioral Science Elective Credit: 3.

Total: 13

Second Semester

ART Studio or Guided Elective Credit: 4.³

ART 4913 - Senior Thesis in Wood III Credit: 3.

ART 4914 - Senior Thesis in Wood IV Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Total: 13

Note:

¹This course not included in 120-hour curriculum.

²Majors in BFA concentrations in Clay, Fibers, Glass, Metals, Painting, and Wood must have C or above in all art courses applied to fulfill requirements in the major. Art courses must also have the grade of C or above in order to serve as prerequisites for other art courses and to be counted as completed in the sophomore assessment for recommendation to advance in the concentration.

³Art studio electives are defined as any art studio course not applied to other requirements. Allow up to 6 credits of guided electives including courses outside the Art curriculum, such as WEBD 1500, MKT 3400, MKT 3500.

Department of Biology

Biology, Biology Concentration, B.S. (Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

BIOL 1000 - Introduction to Biological Methods
Credit: 1.

BIOL 1113 - General Biology I Credit: 4.

CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

MATH Credit: 3. ¹

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.

BIOL 2310 - General Botany Credit: 4.

CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.

MATH Credit: 3. ¹

Total: 18

Sophomore Year

First Semester

GEOL 1040 - Physical Geology Credit: 4. or

PHYS 2010 - Algebra-based Physics I Credit: 4.

HIST 2010 - Early United States History Credit: 3.

Humanities/Fine Arts Electives Credit: 3.

MATH Credit: 3. ¹

Total: 13

Second Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

GEOL 1045 - Earth Environment, Resources and
Society Credit: 4. or

GEOL 2000 - Earth Evolution and Life History

Credit: 3. or

PHYS 2020 - Algebra-based Physics II Credit: 4.

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Electives Credit: 3.

PC 2500 - Communicating in the Professions Credit:
3. or

COMM 2025 - Fundamentals of Communication
Credit: 3.

Total: 15-16

Junior Year

First Semester

BIOL 3120 - General Ecology Credit: 3. ² or

BIOL 3130 - General Ecology Credit: 4.

BIOL 3200 - General Microbiology Credit: 4.

CHEM 3005 - Elementary Organic Chemistry Credit:
4.

Social/Behavioral Sciences Electives Credit: 3.
Total: 14-15
Second Semester
BIOL 3140 - Cellular Biology Credit: 4.
BIOL 3810 - General Genetics Credit: 4.
BIOL 3920 - Biological Communication Skills Credit:
3.
Social/Behavioral Sciences Elective Credit: 3.
Total: 14
Senior Year
First Semester
Approved Biology and Chemistry Courses Credit: 9.
3
Electives Credit: 6.

Total: 15
Second Semester
Approved Biology and Chemistry Courses Credit: 6.
3
Electives Credit: 9-10.

Total: 15-16

Note:

¹ Three math/statistics courses are required, one each from the following pairs of courses: either MATH 1130 or MATH 1710, either MATH 1530 or MATH 1830, and either MATH 3070 or BIOL 4220 (5220)/WFS 4220 (5220).

² Students following the Microbiology option may choose between BIOL 3120 and BIOL 3130.

³ Students will take approved Biology and Chemistry courses from one of the following four options, each with unique requirements:

Botany Option: (18 hours)

BIOL 3240, BIOL 4150 (5150), BIOL 4320 (5320), BIOL 4330 (5330); and

Choose two of the three: BIOL 4300 (5300), BIOL 4310 (5310), BIOL 4780 (5780).

Marine Biology Option: (13-17 hours)

BIOL 4650 (5650); and

Choose one of the four: BIOL 4610 (5610), BIOL 4780 (5780), BIOL 4810 (5810), BIOL 4840 (5840); and

Two courses from the GCRL offerings (requires one summer at the Gulf Coast Research Laboratory; coursework from other marine stations may be substituted with the approval of the advisor.)

Microbiology Option: (18-24 hours)

BIOL 4130 (5130), BIOL 4150 (5150), BIOL 4750 (5750); and

CHEM 4610 (5610), CHEM 4620 (5620); and

Choose two courses from: BIOL 4000 (5000), BIOL 4040 (5040), BIOL 4120 (5120), BIOL

4140 (5140), BIOL 4160 (5160), BIOL 4780 (5780) or BIOL 4850 (5850).

or

BIOL 4130 (5130), BIOL 4150 (5150), BIOL 4750 (5750); and

CHEM 4500; and

Choose two courses from: BIOL 4000 (5000), BIOL 4040 (5040), BIOL 4120 (5120), BIOL 4140 (5140), BIOL 4160 (5160), BIOL 4780 (5780) or BIOL 4850 (5850).

Zoology Option: (16-28 hours)

BIOL 3040, BIOL 3530, and a choice of either BIOL 3330 or BIOL 4610 (5610); and

Choose two courses from: BIOL 3060, BIOL 4000 (5000), BIOL 4230 (5230), BIOL 4630 (5630), BIOL 4810 (5810), BIOL 4820 (5820) or BIOL 4830 (5830).

Biology, Cellular & Molecular Biology Concentration, B.S.

(Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

BIOL 1000 - Introduction to Biological Methods
Credit: 1.

BIOL 1113 - General Biology I Credit: 4.

CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

MATH Credit: 3. ¹

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.

BIOL 2310 - General Botany Credit: 4.

CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.

MATH Credit: 3. ¹

Total: 18

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Humanities/Fine Arts Electives Credit: 3.

PHYS 2010 - Algebra-based Physics I Credit: 4.

Total: 13

Second Semester

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Electives Credit: 3.

MATH Credit: 3. ¹

PC 2500 - Communicating in the Professions Credit:
3. or

COMM 2025 - Fundamentals of Communication
Credit: 3.

PHYS 2020 - Algebra-based Physics II Credit: 4.

Total: 16

Junior Year

First Semester

BIOL 3120 - General Ecology Credit: 3. or

BIOL 3130 - General Ecology Credit: 4.

BIOL 3140 - Cellular Biology Credit: 4.

BIOL 3200 - General Microbiology Credit: 4.

CHEM 3010 - Organic Chemistry I Credit: 4.

Total: 15-16

Second Semester

BIOL 3810 - General Genetics Credit: 4.

BIOL 3920 - Biological Communication Skills Credit:
3.

CHEM 3020 - Organic Chemistry II Credit: 4.

Social/Behavioral Sciences Elective Credit: 3.

Total: 14

Senior Year

First Semester

BIOL 4320 (5320) - Plant Physiology Credit: 3. or

BIOL 3530 - Animal Physiology Credit: 3.

BIOL 4040 (5040) - Immunology Credit: 3. or

BIOL 4060 (5060) - Hormones and Chemical
Communication Credit: 3. or

BIOL 4850 (5850) - Applied Microbiology Credit: 3.

CHEM 4610 (5610) - General Biochemistry I Credit:
3.

Electives Credit: 3-4.

Social/Behavioral Sciences Elective Credit: 3.

Total: 15-16

Second Semester

BIOL 4150 (5150) - Molecular Genetics Credit: 3.

BIOL 4160 (5160) - Genetic Engineering Laboratory
Credit: 2.

CHEM 4620 (5620) - General Biochemistry II Credit:
3.

CHEM 4650 (5650) - General Biochemistry
Laboratory Credit: 2.

Electives Credit: 3.

Total: 13

Note:

¹Three math/statistics courses are required, one each from the following pairs of courses: either MATH 1130 or MATH 1710, either MATH 1530 or MATH 1830, and either MATH 3070 or BIOL 4220 (5220)/WFS 4220 (5220).

**Biology, Environmental Biology Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

BIOL 1000 - Introduction to Biological Methods
Credit: 1.

BIOL 1113 - General Biology I Credit: 4.

CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

MATH Credit: 3. ¹

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.

BIOL 2310 - General Botany Credit: 4.

CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.

MATH Credit: 3. ¹

Total: 18

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

GEOL 1040 - Physical Geology Credit: 4.

HIST 2010 - Early United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Total: 13

Second Semester

GEOL 1045 - Earth Environment, Resources and
Society Credit: 4. or

GEOL 2000 - Earth Evolution and Life History
Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

PC 2500 - Communicating in the Professions Credit:
3. or

COMM 2025 - Fundamentals of Communication
Credit: 3.

PHYS 2010 - Algebra-based Physics I Credit: 4.

Total: 16-17

Junior Year

First Semester

BIOL 3130 - General Ecology Credit: 4.

BIOL 3140 - Cellular Biology Credit: 4.

BIOL 3200 - General Microbiology Credit: 4.

CHEM 3005 - Elementary Organic Chemistry Credit:
4.

Total: 16

Second Semester

BIOL 3810 - General Genetics Credit: 4.

BIOL 3920 - Biological Communication Skills Credit:
3.

BIOL 3530 - Animal Physiology Credit: 3. or

BIOL 4320 (5320) - Plant Physiology Credit: 3.

ESS 3710 - Chemistry and the Environment Credit:
3. or

CHEM 4500 - Nutritional Biochemistry Credit: 3.

MATH Credit: 3. ¹

Total: 16

Senior Year

First Semester

AGRN 2300 - Soils Credit: 3. and

AGRN 2310 - Soil Chemical Properties Credit: 1. or

BIOL 4330 (5330) - Plant Ecology Credit: 3. or

GEOL 4150 (5150) - Geomorphology Credit: 4. or

GEOL 4711 (5711) - Hydrogeology Credit: 4.

BIOL 4610 (5610) - Invertebrate Zoology Credit: 3.

or

BIOL 4840 (5840) - Limnology Credit: 3.

Electives Credit: 3-4.

Social/Behavioral Sciences Elective Credit: 3.

Total: 12-14

Second Semester

BIOL 3240 - Field Botany Credit: 3.

BIOL 4630 (5630) - Ornithology Credit: 3. or

BIOL 4810 (5810) - Ichthyology Credit: 3. or

BIOL 4820 (5820) - Mammalogy Credit: 3. or

BIOL 4830 (5830) - Herpetology Credit: 3.

Electives Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

Total: 12

Note:

¹ Three math/statistics courses are required, one each from the following pairs of courses: either MATH 1130 or MATH 1710; either MATH 1530 or MATH 1830; either MATH 3070 or BIOL 4220 (5220)/WFS 4220 (5220).

Biology, Health Sciences Concentration, B.S. (Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

BIOL 1000 - Introduction to Biological Methods
Credit: 1.

BIOL 1113 - General Biology I Credit: 4.

CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

MATH Credit: 3. ¹

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.

BIOL 2310 - General Botany Credit: 4.

CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.

MATH Credit: 3. ¹

Total: 18

Sophomore Year

First Semester

BIOL 2010 - Human Anatomy and Physiology I
Credit: 4.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

PHYS 2010 - Algebra-based Physics I Credit: 4.

Humanities/Fine Arts Elective Credit: 3.

Total: 14

Second Semester

BIOL 2020 - Human Anatomy and Physiology II
Credit: 4.

Humanities/Fine Arts Elective Credit: 3.

MATH Credit: 3. ¹

PHYS 2020 - Algebra-based Physics II Credit: 4.

Total: 14

Junior Year

First Semester

BIOL 3230 - Health Science Microbiology Credit: 4.

BIOL 3810 - General Genetics Credit: 4.

CHEM 3010 - Organic Chemistry I Credit: 4.

PC 2500 - Communicating in the Professions Credit:
3. or

COMM 2025 - Fundamentals of Communication
Credit: 3.

Total: 15

Second Semester

BIOL 3120 - General Ecology Credit: 3. or

BIOL 3130 - General Ecology Credit: 4.

BIOL 3140 - Cellular Biology Credit: 4.

BIOL 3920 - Biological Communication Skills Credit:
3.

CHEM 3020 - Organic Chemistry II Credit: 4.

Total: 14-15

Senior Year

First Semester

Biology Directed Electives Credit: 6. ²

Electives Credit: 3-4.

HIST 2010 - Early United States History Credit: 3.

PSY 1030 - Introduction to Psychology Credit: 3.

Total: 15-16

Second Semester

Biology Directed Electives Credit: 3-6. ²

Electives Credit: 4-5.

HIST 2020 - Modern United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

Total: 13-17

Note:

¹Three math/statistics courses are required, one each from the following pairs of courses: either MATH 1130 or MATH 1710, either MATH 1530 or MATH 1830, and either MATH 3070 or BIOL 4220 (5220)/WFS 4220 (5220).

²Choose three courses from: BIOL 3040, BIOL 3060, BIOL 4000 (5000), BIOL 4040 (5040), BIOL 4060 (5060), BIOL 4140 (5140), BIOL 4150 (5150), BIOL 4750 (5750), and CHEM 4610 (5610).

**Wildlife & Fisheries Science, Conservation Biology Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

BIOL 1000 - Introduction to Biological Methods
Credit: 1.
BIOL 1113 - General Biology I Credit: 4.

CHEM 1010 - Introductory Chemistry I Credit: 4. or
CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.
MATH Credit: 3. ¹

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.
BIOL 2310 - General Botany Credit: 4.

CHEM 1020 - Introductory Chemistry II Credit: 4. or
CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.
MATH Credit: 3. ¹

Total: 15

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

GEOL 1040 - Physical Geology Credit: 4.
HIST 2010 - Early United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.

Total: 13

Second Semester

GEOL 2000 - Earth Evolution and Life History
Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
MATH Credit: 3. ¹

PC 2500 - Communicating in the Professions Credit:
3. or

COMM 2025 - Fundamentals of Communication
Credit: 3.

Total: 15

Junior Year

First Semester

BIOL 3330 - Entomology Credit: 3. or
BIOL 4610 (5610) - Invertebrate Zoology Credit: 3.

BIOL 3920 - Biological Communication Skills Credit:
3.

BIOL 4330 (5330) - Plant Ecology Credit: 3.

Science Directed Electives Credit: 3-6. ²

WFS 4500 (5500) - National Wildlife Policy Credit: 3.

Total: 15-18

Second Semester

BIOL 3240 - Field Botany Credit: 3.
BIOL 3810 - General Genetics Credit: 4.
Science Directed Electives Credit: 3-4. ²
WFS 3130 - General Ecology Credit: 4.
WFS 4740 (5740) - Wildlife Principles Credit: 2.

Total: 16-17

Senior Year

First Semester

Elective Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.
WFS 4700 (5700) - Habitat Management Credit: 3.
WFS 4711 (5711) - Fisheries Management Credit: 3.

WFS 4810 (5810) - Ichthyology Credit: 3. or
WFS 4830 (5830) - Herpetology Credit: 3.

Total: 15

Second Semester

Electives Credit: 3-4.
Social/Behavioral Sciences Elective Credit: 3.

WFS 4630 (5630) - Ornithology Credit: 3. or
WFS 4820 (5820) - Mammalogy Credit: 3.

WFS 4730 (5730) - Conservation Biology Credit: 3.

Total: 12-14

Note:

¹Three math/statistics courses are required, one each from the following pairs of courses: either MATH 1130 or MATH 1710, either MATH 1530 or MATH 1830, and either MATH 3070 or BIOL 4220 (5220)/WFS 4220 (5220).

²Choose two courses from AGHT 3450, AGRN 2300 plus AGRN 2310 (both must be taken concurrently and count as a single course for this requirement), BIOL 3530, BIOL 4320 (5320), BIOL 4840 (5840), WFS 4770 (5770), and GEOG 4410 (5410) or GEOG 4510 (5510) or WFS 4870

(5870) (only one of these final three courses will count toward this requirement.)

**Wildlife & Fisheries Science, Fisheries Science Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

BIOL 1000 - Introduction to Biological Methods
Credit: 1.

BIOL 1113 - General Biology I Credit: 4.

CHEM 1010 - Introductory Chemistry I Credit: 4. or
CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.
MATH Credit: 3. ¹

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.

BIOL 2310 - General Botany Credit: 4.

CHEM 1020 - Introductory Chemistry II Credit: 4. or
CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.
MATH Credit: 3. ¹

Total: 18

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

GEOL 1040 - Physical Geology Credit: 4.
HIST 2010 - Early United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
MATH Credit: 3. ¹

Total: 16

Second Semester

GEOL 2000 - Earth Evolution and Life History
Credit: 3.

HIST 2020 - Modern United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.

PC 2500 - Communicating in the Professions Credit:
3. or

COMM 2025 - Fundamentals of Communication
Credit: 3.

Total: 12

Junior Year

First Semester

BIOL 3810 - General Genetics Credit: 4.

Science Directed Electives Credit: 3-4. ²

WFS 4500 (5500) - National Wildlife Policy Credit: 3.
WFS 4710 (5710) - Fisheries Management Credit: 4.

Total: 14-15

Second Semester

BIOL 3920 - Biological Communication Skills Credit:
3.

WFS 3130 - General Ecology Credit: 4.

WFS 4810 (5810) - Ichthyology Credit: 3.

Science Directed Electives Credit: 3-6. ²

Total: 13-16

Senior Year

First Semester

BIOL 4610 (5610) - Invertebrate Zoology Credit: 3.
Electives Credit: 2-4.

Social/Behavioral Sciences Elective Credit: 3.

WFS 4740 (5740) - Wildlife Principles Credit: 2.

WFS 4840 (5840) - Limnology Credit: 3.

Total: 13-15

Second Semester

BIOL 3240 - Field Botany Credit: 3.

BIOL 4780 (5780) - Phycology Credit: 3.

Electives Credit: 2-4.

Social/Behavioral Sciences Elective Credit: 3.

WFS 4760 (5760) - Fish Culture Credit: 4.

Total: 15-17

Note:

¹Three math/statistics courses are required, one each from the following pairs of courses: either MATH 1130 or MATH 1710, either MATH 1530 or MATH 1830, and either MATH 3070 or BIOL 4220 (5220)/WFS 4220 (5220).

²Choose two courses from AGRN 2300 plus AGRN 2310 (both must be taken concurrently and count as a single course for this requirement), BIOL 3530, BIOL 4330 (5330), WFS 4700 (5700), WFS 4730 (5730), WFS 4770 (5770), and GEOG 4410 (5410) or GEOG 4510 (5510) or WFS 4870 (5870) (only one of these final three courses will count toward this requirement.)

**Wildlife & Fisheries Science, Wildlife Science Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

BIOL 1000 - Introduction to Biological Methods
Credit: 1.

BIOL 1113 - General Biology I Credit: 4.

CHEM 1010 - Introductory Chemistry I Credit: 4. or
CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

MATH Credit: 3. ¹

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.

BIOL 2310 - General Botany Credit: 4.

CHEM 1020 - Introductory Chemistry II Credit: 4. or

CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.

MATH Credit: 3. ¹

Total: 18

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

GEOL 1040 - Physical Geology Credit: 4.

HIST 2010 - Early United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Total: 13

Second Semester

GEOL 2000 - Earth Evolution and Life History
Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

MATH Credit: 3. ¹

PC 2500 - Communicating in the Professions Credit:
3. or

COMM 2025 - Fundamentals of Communication
Credit: 3.

Total: 15

Junior Year

First Semester

BIOL 3810 - General Genetics Credit: 4.

BIOL 4330 (5330) - Plant Ecology Credit: 3.

Science Directed Electives Credit: 3-6. ²

WFS 3130 - General Ecology Credit: 4.

Total: 14-17

Second Semester

BIOL 3240 - Field Botany Credit: 3.

BIOL 3920 - Biological Communication Skills Credit:
3.

Science Directed Electives: 3-4. ²

WFS 3500 - Wildlife Law Enforcement Credit: 3.

WFS 4740 (5740) - Wildlife Principles Credit: 2.

Total: 14-15

Senior Year

First Semester

AGHT 3450 - Dendrology Credit: 3.

Electives Credit: 1-2.

Social/Behavioral Sciences Elective Credit: 3.

WFS 4500 (5500) - National Wildlife Policy Credit: 3.

WFS 4670 (5670) - Wild Mammal Ecology Credit: 3.

WFS 4700 (5700) - Habitat Management Credit: 3.

Total: 16-17

Second Semester

Electives Credit: 1-2.

Social/Behavioral Sciences Elective Credit: 3.

WFS 4660 (5660) - Wild Bird Ecology Credit: 3.

WFS 4790 - Wildlife Techniques Credit: 6.

WFS 4830 (5830) - Herpetology Credit: 3.

Total: 16-17

Note:

¹Three math/statistics courses are required, one each from the following pairs of courses: either MATH 1130 or MATH 1710, either MATH 1530 or MATH 1830, and either MATH 3070 or BIOL 4220 (5220)/WFS 4220 (5220).

²Choose two courses from AGHT 3450, AGRN 2300 plus AGRN 2310 (both must be taken concurrently and count as a single course for this requirement), BIOL 3530, BIOL 4320 (5320), WFS 4770 (5770), WFS 4800, BIOL 4840 (5840) and GEOG 4410 (5410) or GEOG 4510 (5510) or WFS 4870 (5870) (only one of these final three courses will count toward this requirement.)

Department of Decision Sciences and Management
Business Management, Business and Information
Technology Concentration, B.S.B.A.
(Leading to the Bachelor of Science in Business
Administration Degree)

Basic Business

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH 1130 - College Algebra Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 1.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 3.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 16

Sophomore Year

First Semester

ACCT 2110 - Principles of Accounting I Credit: 3.

ECON 2010 - Principles of Microeconomics Credit:
3.

HIST 2010 - Early United States History Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Total: 15

Second Semester

ACCT 2120 - Principles of Accounting II Credit: 3.

ECON 2020 - Principles of Macroeconomics Credit:
3.

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.³

Elective Credit: 3.²

Total: 15

Note:

¹Select two courses from the following: ASTR 1010, ASTR 1020; BIOL 1010, BIOL 1020, BIOL 1123, BIOL 2310, BIOL 2010, BIOL 2020; CHEM 1010, CHEM 1020, CHEM 1110, CHEM 1120; GEOL 1040, GEOL 1045; PHYS 2010, PHYS 2020, PHYS 2110, PHYS 2120 .

²Elective courses are to be selected in consultation with the academic advisor. UBUS 1020 may not be required in some instances. MATH 1000 and READ 1010 does not count as credit toward BSBA degree completion, including as elective. See advisor.

³Select two courses from the University approved Humanities/Fine Arts list .

Curriculum

Junior Year

First Semester

BMGT 3510 - Management and Organization
Behavior Credit: 3.

ECON 3610 - Business Statistics I Credit: 3.

DS 3841 - Management Information Systems Credit:
3.

DS 3850 - Business Applications Development
Credit: 3.

MKT 3400 - Principles of Marketing Credit: 3.

Total: 15

Second Semester

BMGT 3720 - Business Communication I Credit: 3.

DS 3620 - Business Analytics: Data Driven Decision
Making Credit: 3.

DS 3860 - Business Database Management Credit:
3.

DS Elective Credit: 3.

FIN 3210 - Principles of Managerial Finance Credit:
3.

Total: 15

Senior Year

First Semester

LAW 2810 - Business Legal Environment and Ethics
Credit: 3.

DS 3520 - Operations Management Credit: 3.

DS 3870 - Business Applications Development II
Credit: 3.

DS 4330 (5330) - Management Information Systems
Analysis and Design Credit: 3.

Elective Credit: 3.¹

Total: 15

Second Semester

Business Elective Credit: 3.¹

BMGT 4930 (5930) - Business Strategy Credit: 3.

DS 4250 - Business Data Communications Credit: 3.

DS 4550 - Information Systems Development
Practicum Credit: 3.

ECON 3320 - Money and Banking Credit: 3. or

ECON 3810 - Intermediate Microeconomics Credit:
3. or

ECON 3820 - Intermediate Macroeconomics Credit:
3.

Total: 15

Note:

¹ Elective courses are to be selected in consultation with the academic advisor.

Business Management, Business Intelligence and Analytics Concentration, B.S.B.A. (Leading to the Bachelor of Science in Business Administration Degree)

Basic Business

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH 1130 - College Algebra Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 1.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 3.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 16

Sophomore Year

First Semester

ACCT 2110 - Principles of Accounting I Credit: 3.

ECON 2010 - Principles of Microeconomics Credit:
3.

HIST 2010 - Early United States History Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Total: 15

Second Semester

ACCT 2120 - Principles of Accounting II Credit: 3.

ECON 2020 - Principles of Macroeconomics Credit:
3.

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.³

Elective Credit: 3.²

Total: 15

Note:

¹Select two courses from the following: ASTR 1010,
ASTR 1020; BIOL 1010, BIOL 1020, BIOL 1123, BIOL
2310, BIOL 2010, BIOL 2020; CHEM 1010, CHEM
1020, CHEM 1110, CHEM 1120; GEOL 1040, GEOL
1045; PHYS 2010, PHYS 2020, PHYS 2110, PHYS
2120 .

²Elective courses are to be selected in consultation with
the academic advisor. UBUS 1020 may not be required
in some instances. MATH 1000 and READ 1010 does
not count as credit toward BSBA degree completion,
including as elective. See advisor.

³Select two courses from the University approved
Humanities/Fine Arts list .

Junior Year

First Semester

BMGT 3510 - Management and Organization
Behavior Credit: 3.

DS 3860 - Business Database Management Credit:
3.

DS Elective Credit: 3.⁴

ECON 3610 - Business Statistics I Credit: 3.

Elective Credit: 3.²

Total: 15

Second Semester

Business Elective Credit: 3.⁴

DS 3620 - Business Analytics: Data Driven Decision
Making Credit: 3.

Elective Credit: 3.²

FIN 3210 - Principles of Managerial Finance Credit:
3.

MKT 3400 - Principles of Marketing Credit: 3.

Total: 15

Senior Year

First Semester

DS 3841 - Management Information Systems Credit:
3.

DS 4210 - Business Intelligence Credit: 3.

DS 4220 - Advanced Business Analytics Credit: 3.

ECON 3810 - Intermediate Microeconomics Credit:
3. or

ECON 3820 - Intermediate Macroeconomics Credit:
3.

LAW 2810 - Business Legal Environment and Ethics
Credit: 3.

Total: 15

Second Semester

BMGT 4930 (5930) - Business Strategy Credit: 3.

Business Elective Credit: 3.⁴

DS 3520 - Operations Management Credit: 3.

DS 4510 - Business Intelligence and Analytics

Capstone Credit: 3.

ECON 4640 (5640) - Econometrics Credit: 3.

Total: 15

Note:

⁴DS and Business Electives must be approved by the
academic advisor and be consistent with the intent of
this concentration.

**Business Management, General Management
Concentration, B.S.B.A.
(Leading to the Bachelor of Science in Business
Administration Degree)**

Basic Business

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH 1130 - College Algebra Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 1.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 3.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 16

Sophomore Year

First Semester

ACCT 2110 - Principles of Accounting I Credit: 3.

ECON 2010 - Principles of Microeconomics Credit:
3.

HIST 2010 - Early United States History Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Total: 15

Second Semester

ACCT 2120 - Principles of Accounting II Credit: 3.

ECON 2020 - Principles of Macroeconomics Credit:
3.

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.³

Elective Credit: 3.²

Total: 15

Note:

¹Select two courses from the following: ASTR 1010,
ASTR 1020; BIOL 1010, BIOL 1020, BIOL 1123, BIOL
2310, BIOL 2010, BIOL 2020; CHEM 1010, CHEM
1020, CHEM 1110, CHEM 1120; GEOL 1040, GEOL
1045; PHYS 2010, PHYS 2020, PHYS 2110, PHYS
2120 .

²Elective courses are to be selected in consultation with
the academic advisor. UBUS 1020 may not be required
in some instances. MATH 1000 and READ 1010 does
not count as credit toward BSBA degree completion,
including as elective. See advisor.

³Select two courses from the University approved
Humanities/Fine Arts list .

Curriculum

Junior Year

First Semester

BMGT 3510 - Management and Organization
Behavior Credit: 3.

DS 3841 - Management Information Systems Credit:
3.

ECON 3610 - Business Statistics I Credit: 3.

FIN 3210 - Principles of Managerial Finance Credit:
3.

MKT 3400 - Principles of Marketing Credit: 3.

Total: 15

Second Semester

BMGT 3600 - International Management Credit: 3.

BMGT 3630 - Human Resource Management Credit:
3.

Business Elective Credit: 3.¹

DS Elective Credit: 3.

ECON 3320 - Money and Banking Credit: 3. or

ECON 3810 - Intermediate Microeconomics Credit:
3. or

ECON 3820 - Intermediate Macroeconomics Credit:
3.

Total: 15

Senior Year

First Semester

BMGT 3720 - Business Communication I Credit: 3.

DS 3520 - Operations Management Credit: 3.

DS 3620 - Business Analytics: Data Driven Decision
Making Credit: 3.

Elective Credit: 3.

LAW 2810 - Business Legal Environment and Ethics
Credit: 3.

Total: 15

Second Semester

BMGT 4520 (5520) - Organizational Leadership
Credit: 3.

BMGT 4930 (5930) - Business Strategy Credit: 3.

BMGT Electives Credit: 6.¹

Elective Credit: 3.¹

Total: 15

Note:

¹ Elective courses are to be selected in consultation with
the academic advisor.

**Business Management, Human Resource
Management Concentration, B.S.B.A.
(Leading to the Bachelor of Science in Business
Administration Degree)**

Basic Business

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH 1130 - College Algebra Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 1.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 3.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 16

Sophomore Year

First Semester

ACCT 2110 - Principles of Accounting I Credit: 3.

ECON 2010 - Principles of Microeconomics Credit:
3.

HIST 2010 - Early United States History Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Total: 15

Second Semester

ACCT 2120 - Principles of Accounting II Credit: 3.

ECON 2020 - Principles of Macroeconomics Credit:
3.

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.³

Elective Credit: 3.²

Total: 15

Note:

¹Select two courses from the following: ASTR 1010,
ASTR 1020; BIOL 1010, BIOL 1020, BIOL 1123, BIOL
2310, BIOL 2010, BIOL 2020; CHEM 1010, CHEM
1020, CHEM 1110, CHEM 1120; GEOL 1040, GEOL
1045; PHYS 2010, PHYS 2020, PHYS 2110, PHYS
2120 .

²Elective courses are to be selected in consultation with
the academic advisor. UBUS 1020 may not be required
in some instances. MATH 1000 and READ 1010 does
not count as credit toward BSBA degree completion,
including as elective. See advisor.

³Select two courses from the University approved
Humanities/Fine Arts list .

Curriculum

Junior Year

First Semester

BMGT 3510 - Management and Organization
Behavior Credit: 3.

DS 3841 - Management Information Systems Credit:
3.

ECON 3610 - Business Statistics I Credit: 3.

FIN 3210 - Principles of Managerial Finance Credit:
3.

MKT 3400 - Principles of Marketing Credit: 3.

Total: 15

Second Semester

BMGT 3630 - Human Resource Management Credit:
3.

BMGT Elective Credit: 6.

DS 3620 - Business Analytics: Data Driven Decision
Making Credit: 3.

LAW 2810 - Business Legal Environment and Ethics
Credit: 3.

Total: 15

Senior Year

First Semester

BMGT 4120 (5120) - Compensation Administration
Credit: 3.

BMGT 4610 - Training and Development Credit: 3.

Business Elective Credit: 3.¹

DS 3520 - Operations Management Credit: 3.

ECON 3320 - Money and Banking Credit: 3. or

ECON 3810 - Intermediate Microeconomics Credit:
3. or

ECON 3820 - Intermediate Macroeconomics Credit:
3.

Total: 15

Second Semester

BMGT 3720 - Business Communication I Credit: 3.

BMGT 4100 - Staffing Credit: 3.

BMGT 4150 - Employment and Labor Law Credit: 3.

BMGT 4930 (5930) - Business Strategy Credit: 3.

Elective Credit: 3.¹

Total: 15

Note:

¹ Elective courses are to be selected in consultation with
the academic advisor.

**Business Management, Production & Operations
Concentration, B.S.B.A.
(Leading to the Bachelor of Science in Business
Administration Degree)**

Basic Business

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH 1130 - College Algebra Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 1.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.

MATH 1830 - Applied Calculus Credit: 3.

Natural Science Credit: 4.¹

Elective Credit: 3.²

DS 2810 - Computer Applications in Business
Credit: 3. or

Humanities/Fine Arts Elective Credit: 3.³

Total: 16

Sophomore Year

First Semester

ACCT 2110 - Principles of Accounting I Credit: 3.

ECON 2010 - Principles of Microeconomics Credit:
3.

HIST 2010 - Early United States History Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Total: 15

Second Semester

ACCT 2120 - Principles of Accounting II Credit: 3.

ECON 2020 - Principles of Macroeconomics Credit:
3.

HIST 2020 - Modern United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.³

Elective Credit: 3.²

Total: 15

Note:

¹Select two courses from the following: ASTR 1010,
ASTR 1020; BIOL 1010, BIOL 1020, BIOL 1123, BIOL
2310, BIOL 2010, BIOL 2020; CHEM 1010, CHEM
1020, CHEM 1110, CHEM 1120; GEOL 1040, GEOL
1045; PHYS 2010, PHYS 2020, PHYS 2110, PHYS
2120 .

²Elective courses are to be selected in consultation with
the academic advisor. UBUS 1020 may not be required
in some instances. MATH 1000 and READ 1010 does
not count as credit toward BSBA degree completion,
including as elective. See advisor.

³Select two courses from the University approved
Humanities/Fine Arts list .

Curriculum

Junior Year

First Semester

ACCT 3210 - Cost Accounting Credit: 3.

BMGT 3510 - Management and Organization
Behavior Credit: 3.

DS 3841 - Management Information Systems Credit:
3.

ECON 3610 - Business Statistics I Credit: 3.

MKT 3400 - Principles of Marketing Credit: 3.

Total: 15

Second Semester

BMGT 3630 - Human Resource Management Credit:
3.

Business Elective Credit: 3.

DS 3520 - Operations Management Credit: 3.

DS 3620 - Business Analytics: Data Driven Decision
Making Credit: 3.

FIN 3210 - Principles of Managerial Finance Credit:
3.

Total: 15

Senior Year

First Semester

BMGT 3720 - Business Communication I Credit: 3.

DS 3540 - Quality and Productivity Systems Credit:
3.

DS or BMGT Elective Credit: 3.¹

LAW 2810 - Business Legal Environment and Ethics
Credit: 3.

MET Elective Credit: 3.¹

Total: 15

Second Semester

BMGT 4930 (5930) - Business Strategy Credit: 3.

Business Elective Credit: 3.¹

DS or BMGT Elective Credit: 3.¹

ECON 3320 - Money and Banking Credit: 3.

ECON 3810 - Intermediate Microeconomics Credit:
3.

ECON 3820 - Intermediate Macroeconomics Credit:
3.

MET Elective Credit: 3.¹

Total: 15

Note:

¹Elective courses are to be selected in consultation with
the academic advisor.

Department of Chemistry

Chemistry, Applied Chemistry Concentration, B.S. (Leading to the Bachelor of Science Degree)

A.C.S. Certification

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

CHEM 1110 - General Chemistry I Credit: 4.

BIOL 1113 - General Biology I Credit: 4.

MATH 1530 - Introductory Statistics Credit: 3.

CHEM 1500 - First Year Interactions and
Advisement Credit: 1.

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.

CHEM 1120 - General Chemistry II Credit: 4.

BIOL 1123 - General Biology II Credit: 4.

Humanities/Fine Arts Elective Credit: 3.

Total: 14

Sophomore Year

First Semester

CHEM 2010 - Introduction to Inorganic Chemistry
Credit: 3.

CHEM 3410 - Quantitative Analysis Credit: 4.

PHYS 2010 - Algebra-based Physics I Credit: 4.

Social/Behavioral Science Elective Credit: 3.

Technical Elective Credit: 3.¹

Total: 17

Second Semester

CHEM 3420 - Analytical Applications Credit: 3.

MATH 1910 - Calculus I Credit: 4.

PHYS 2020 - Algebra-based Physics II Credit: 4.

Social/Behavioral Science Elective Credit: 3.

Total: 14

Junior Year

First Semester

CHEM 3010 - Organic Chemistry I Credit: 4.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Technical Elective Credit: 4.¹

Total: 14

Second Semester

CHEM 3020 - Organic Chemistry II Credit: 4.

CHEM 3500 - Elements of Physical Chemistry
Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Technical Elective Credit: 3.¹

COMM 2025 - Fundamentals of Communication

Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Total: 16

Senior Year

First Semester

CHEM 4910 - Chemistry Seminar Credit: 2.

Advanced CHEM Courses Credit: 6.¹

Technical Elective Credit: 3-5.¹

Elective Credit: 2-4.

Total: 15

Second Semester

Advanced CHEM Course Credit: 3.¹

Electives Credit: 7-9.

Humanities/Fine Arts Elective Credit: 3.

Total: 15

Note:

¹ Students will take chemistry (a) and technical requirements (b) from one of the six options below. Within certain options students should take the

indicated social science (c) general education courses to satisfy prerequisites for technical requirements.

Business Chemistry:

Nine hours of advanced chemistry approved by the chemistry advisor.

ACCT 3720, BMGT 3510, FIN 3210, MKT

3400 plus 3 hours chosen from DS 3620 or LAW 2810.

ECON 2010 and ECON 2020

Environmental Chemistry:

CHEM 4710 (5710) and CHEM 4720 (5720) plus 3 hours of advanced chemistry approved by the chemistry advisor.

BIOL 3120 plus 12 hours chosen from AGRN 3230, AGRN 4220 (5220), BIOL 4130 (5130), BIOL 4840 (5840), GEOG 4510 (5510), GEOL 4300 (5300) and GEOL 4711 (5711).

Forensic Chemistry:

CHEM 4410 (5410), CHEM 4610 (5610) and CHEM 4650 (5650).

CJ 2660, CJ 4250 (5250), BIOL 3330, BIOL 3810 and BIOL 4150 (5150).

Health Science Chemistry:

CHEM 4610 (5610) and CHEM 4620 (5620) plus 3 hours of advanced chemistry approved by the Chemistry Advisor.

BIOL 2010, BIOL 2020, BIOL 3230 plus 3 hours chosen from BIOL 3810, BIOL 4040 (5040), BIOL 4060 (5060) and BIOL 4150 (5150).

Industrial Chemistry:

CHEM 4210 (5210), CHEM 4520 (5520) and CHEM 4710 (5710).

COOP 2010, COOP 2020, COOP 2030, MET 1100, MET 2000, MET 3740, PC 3250 plus 3 hours chosen from ACCT 3720, COOP 4010, COOP 4020, COOP 4030, ME 3110 and MET 3080.

Chemistry:

Nine hours of advanced chemistry approved by the Chemistry Advisor.

A program of 14 hours of complementary coursework approved by the Chemistry Advisor.

² Pre-professional students majoring in Pre-Medicine, Pre-Dentistry, Pre-Pharmacy, Pre-Medical Technology, Pre-Cytotechnology, Pre-Optometry and Pre-Dental Hygiene electing to receive a Bachelor of Science Degree with a major in Chemistry from Tennessee Technological University may use the first year of coursework from an accredited professional school as their senior year after completing the first three years of this program as outlined above.

**Chemistry, Biochemistry Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

A.C.S. Certification

A student in any chemistry concentration may attain certification by the American Chemical Society as determined by the Chemistry faculty. The Chemistry Department defines specific areas of certification including, but not restricted to, pure chemistry, biochemistry and environmental chemistry. The requirements for certification in these areas are outside the curricular requirements of the three major concentrations. To attain ACS-certification within one of the following concentrations, a student must complete the following minimum requirements:

The student must take MATH 1920.

The student must take CHEM 2010, CHEM 3510, CHEM 4210 (5210), CHEM 4520 (5520), CHEM 4610 (5610) and CHEM 4991. CHEM 3510 and CHEM 4520 (5520) may be substituted for CHEM 3500 and CHEM 3420, respectively, in curricula where the lower courses are required.

The student must take a minimum of two advanced courses chosen from: CHEM 3520, CHEM 4110 (5110), CHEM 4150 (5150), CHEM 4310 (5310), CHEM 4320 (5320), CHEM 4410 (5410), CHEM 4620 (5620), CHEM 4650 (5650), CHEM 4710 (5710), CHEM 4720 (5720).

The advanced courses above must include a minimum of three credit hours of laboratory including either CHEM 4150 (5150) or CHEM 4650 (5650).

Requirements for specific areas of certification can be obtained from the Chemistry Advisor.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
CHEM 1110 - General Chemistry I Credit: 4.
BIOL 1113 - General Biology I Credit: 4.
MATH 1910 - Calculus I Credit: 4.
CHEM 1500 - First Year Interactions and Advisement Credit: 1.

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.
CHEM 1120 - General Chemistry II Credit: 4.
BIOL 1123 - General Biology II Credit: 4.
Social/Behavioral Science Elective Credit: 3.

Total: 14

Sophomore Year

First Semester

CHEM 3410 - Quantitative Analysis Credit: 4.
BIOL 3230 - Health Science Microbiology Credit: 4.
PHYS 2010 - Algebra-based Physics I Credit: 4.
Humanities/Fine Arts Elective Credit: 3.

Total: 15

Second Semester

CHEM 3420 - Analytical Applications Credit: 3.
BIOL 3140 - Cellular Biology Credit: 4.
PHYS 2020 - Algebra-based Physics II Credit: 4.
Humanities/Fine Arts Elective Credit: 3.

Total: 14

Junior Year

First Semester

CHEM 3010 - Organic Chemistry I Credit: 4.
BIOL 3810 - General Genetics Credit: 4.
HIST 2010 - Early United States History Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

Total: 14

Second Semester

CHEM 3020 - Organic Chemistry II Credit: 4.
CHEM 3500 - Elements of Physical Chemistry
Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
Social/Behavioral Science Elective Credit: 3.

Total: 16

Senior Year

First Semester

CHEM 4610 (5610) - General Biochemistry I Credit: 3.
CHEM 4910 - Chemistry Seminar Credit: 2.
MATH 3070 - Statistical Methods I Credit: 3.
Elective Credit: 5.
BIOL Elective Credit: 3.¹

Total: 16

Second Semester

CHEM 4620 (5620) - General Biochemistry II Credit: 3.
CHEM 4650 (5650) - General Biochemistry
Laboratory Credit: 2.
BIOL 4150 (5150) - Molecular Genetics Credit: 3.
Elective Credit: 7.

Total: 15

Note:

¹ Choose from BIOL 4040 (5040) or BIOL 4060 (5060).

**Chemistry, Pure Chemistry Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

A.C.S. Certification

A student in any chemistry concentration may attain certification by the American Chemical Society as determined by the Chemistry faculty. The Chemistry Department defines specific areas of certification including, but not restricted to, pure chemistry, biochemistry and environmental chemistry. The requirements for certification in these areas are outside the curricular requirements of the three major concentrations. To attain ACS-certification within one of

the following concentrations, a student must complete the following minimum requirements:

The student must take MATH 1920.

The student must take CHEM 2010, CHEM 3510, CHEM 4210 (5210), CHEM 4520 (5520), CHEM 4610 (5610) and CHEM 4991. CHEM 3510 and CHEM 4520 (5520) may be substituted for CHEM 3500 and CHEM 3420, respectively, in curricula where the lower courses are required.

The student must take a minimum of two advanced courses chosen from: CHEM 3520, CHEM 4110 (5110), CHEM 4150 (5150), CHEM 4310 (5310), CHEM 4320 (5320), CHEM 4410 (5410), CHEM 4620 (5620), CHEM 4650 (5650), CHEM 4710 (5710), CHEM 4720 (5720).

The advanced courses above must include a minimum of three credit hours of laboratory including either CHEM 4150 (5150) or CHEM 4650 (5650).

Requirements for specific areas of certification can be obtained from the Chemistry Advisor.

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
CHEM 1110 - General Chemistry I Credit: 4.
MATH 1910 - Calculus I Credit: 4.
CHEM 1500 - First Year Interactions and Advisement Credit: 1.
CHEM 3410 - Quantitative Analysis Credit: 4.
CHEM 3510 - Physical Chemistry I Credit: 4.
HIST 2010 - Early United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.

Total: 14

Second Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or
PC 2500 - Communicating in the Professions Credit: 3.

HIST 2020 - Modern United States History Credit: 3.
CHEM 3520 - Physical Chemistry II Credit: 4.
Elective Credit: 6.

Total: 16

Senior Year

First Semester

CHEM 4520 (5520) - Instrumental Analysis Credit: 4.
CHEM 4610 (5610) - General Biochemistry I Credit: 3.
CHEM 4910 - Chemistry Seminar Credit: 2.
CHEM Elective Credit: 3.²
Elective Credit: 3.

Total: 15

Second Semester

CHEM 4110 (5110) - Inorganic Chemistry Credit: 3.

Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.
CHEM 1120 - General Chemistry II Credit: 4.
MATH 1920 - Calculus II Credit: 4.
Social/Behavioral Science Elective Credit: 3.

Total: 14

Sophomore Year

First Semester

CHEM 2010 - Introduction to Inorganic Chemistry Credit: 3.
CHEM 3010 - Organic Chemistry I Credit: 4.
PHYS 2110 - Calculus-based Physics I Credit: 4.
MATH 2110 - Calculus III Credit: 4.

Total: 15

Second Semester

ENGL 2130 - Topics in American Literature Credit: 3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

CHEM 3020 - Organic Chemistry II Credit: 4.
PHYS 2120 - Calculus-based Physics II Credit: 4.
MATH/PHYS Elective Credit: 3.¹

Total: 17

Junior Year

First Semester

CHEM 4150 (5150) - Inorganic Chemistry Laboratory Credit: 1.
CHEM 4210 (5210) - Chemistry of Polymers Credit: 3.
CHEM 4991 - Undergraduate Research Credit: 1.
CHEM Elective Credit: 3.²
Elective Credit: 3.

Total: 14

Note:

¹ Choose from MATH 2010, MATH 2120, MATH 3070 or PHYS 2920.

² Choose from CHEM 4310 (5310), CHEM 4320 (5320), CHEM 4410 (5410), CHEM 4620 (5620), CHEM 4650 (5650), CHEM 4710 (5710), and CHEM 4720 (5720).

General Curriculum Pre-Dental Hygiene

Tennessee Tech offers the prerequisite coursework required by dental hygiene bachelor's degree programs. Students complete prerequisite coursework outlined below at TTU then apply for admission to dental hygiene programs at other institutions such as East Tennessee State University (ETSU), University of Tennessee Health Sciences Center (UTHSC), and others. Entrance into dental hygiene programs is very competitive and is not

guaranteed solely by completing the prerequisite coursework outlined below.

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.

CHEM 1010 - Introductory Chemistry I Credit: 4. or
CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

MATH 1130 - College Algebra Credit: 3. ¹

UNPP 1020 - University Pre-Professional, First-Year
Interactions and Advisement Credit: 1.

Total: 15

Second Semester

CHEM 1020 - Introductory Chemistry II Credit: 4. or
CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3. ¹

PSY 1030 - Introduction to Psychology Credit: 3.

SOC 1010 - Introduction to Sociology Credit: 3.

Total: 16

Sophomore Year

First Semester

BIOL 2010 - Human Anatomy and Physiology I
Credit: 4.

BIOL 3230 - Health Science Microbiology Credit: 4.

COMM 2025 - Fundamentals of Communication
Credit: 3.

Elective Credit: 3. ²

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

Total: 17

Second Semester

BIOL 2020 - Human Anatomy and Physiology II
Credit: 4.

Elective Credit: 3. ²

HEC 2020 - Nutrition for Health Sciences Credit: 3.

HIMT 1300 Medical Terminology Credit: 3.

Total: 13

Notes:

¹ ETSU requires MATH 1530 - Introductory Statistics;
UTHSC requires MATH 1130 - College Algebra.

² For students intending to earn a Bachelor's degree
before entering professional school, it is recommended
that elective courses be taken from core requirements
or a selected degree program. HIST 2010 - Early
United States History and HIST 2020 - Modern United
States History are required pre-requisites at some
dental hygiene programs. University of Louisville
Bachelor of Science in Dental Hygiene Program

requires 3 credits in Western Civilization, 6 credits in
Arts and Humanities, and 6 credits in Cultural Diversity.

General Curriculum Pre-Dentistry

Students should earn at least 120 credit hours and a
B.S. or B.A. degree to be competitive for admission to
dental school. It is recommended that elective hours be
taken from general education core requirements or a
selected bachelor's degree program. Additional courses
in chemistry and biology are suggested. Entrance into
dental school is very competitive and is not guaranteed
solely by completing the prerequisite coursework
outlined below. Consult with your advisor regularly about
academic and non-academic factors associated with
dental school admissions.

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.

CHEM 1110 - General Chemistry I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

MATH Credit: 3. ¹

UNPP 1020 - University Pre-Professional, First-Year
Interactions and Advisement Credit: 1.

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.

CHEM 1120 - General Chemistry II Credit: 4.

Electives Credit: 3. ²

ENGL 1020 - English Composition II Credit: 3.

MATH Credit: 3. ¹

Total: 17

Sophomore Year

First Semester

CHEM 3010 - Organic Chemistry I Credit: 4.

Electives (Humanities-3 hours) Credit: 4. ²

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

PHYS 2010 - Algebra-based Physics I Credit: 4.

Total: 15

Second Semester

CHEM 3020 - Organic Chemistry II Credit: 4.

Electives Credit: 9. ²

PHYS 2020 - Algebra-based Physics II Credit: 4.

Total: 17

Junior Year

First Semester

BIOL Elective Credit: 4.

CHEM 4610 (5610) - General Biochemistry I Credit:
3.

Electives Credit: 8. ²

Total: 15

Second Semester

BIOL 3230 - Health Science Microbiology Credit: 4.
CHEM 4620 (5620) - General Biochemistry II Credit:
3.

Electives Credit: 6. ²

Total: 13

Note

It is recommended that students have at least 120 semester hours credit or a B.A. or B.S. degree to be competitive for admission.

¹ A course in Calculus and a course in Statistics are recommended.

² For students intending to earn a Bachelor's degree before entering professional school, it is recommended that elective hours be taken from core requirements or a selected degree program. Additional courses in Chemistry and Biology are suggested.

General Curriculum Pre-Health Information Management

The curriculum below is geared towards The University of Tennessee Health Science Center's (UTHSC) entry-level Master of Health Informatics and Information Management (MHIIM) program. This fully online program requires a baccalaureate degree and completion of the prerequisite courses below. It is recommended that elective hours be taken from general education core requirements or a selected bachelor's degree program. Entrance into health information management programs is competitive and is not guaranteed solely by completing the prerequisite coursework outlined below.

Curriculum

Freshman Year

First Semester

Electives Credit: 6. ¹
ENGL 1010 - English Composition I Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.
UNPP 1020 - University Pre-Professional, First-Year Interactions and Advisement Credit: 1.

Total: 16

Second Semester

Electives Credit: 9. ¹
ENGL 1020 - English Composition II Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Sophomore Year

First Semester

BIOL 2010 - Human Anatomy and Physiology I Credit: 4.
COMM 2025 - Fundamentals of Communication Credit: 3.
Elective Credit: 6. ¹

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

Total: 16

Second Semester

BIOL 2020 - Human Anatomy and Physiology II Credit: 4.
DS 2810 - Computer Applications in Business Credit: 3.

Electives Credit: 8. ¹

Total: 15

Junior Year

First Semester

BMGT 3510 - Management and Organization Behavior Credit: 3.
DS 3860 - Business Database Management Credit: 3.
Electives Credit: 6. ¹
HIMT 1300 Medical Terminology Credit: 3.

Total: 15

Second Semester

BMGT 3630 - Human Resource Management Credit: 3.
DS 4330 (5330) - Management Information Systems Analysis and Design Credit: 3.
Electives Credit: 9. ¹

Total: 15

Note:

¹The University of Tennessee Health Science Center's (UTHSC) entry-level Master of Health Informatics and Information Management (MHIIM) program requires a baccalaureate degree and completion of prerequisite courses (above). It is recommended that elective hours be taken from general education core requirements, a selected degree program, and the following suggested electives: ACCT 2110, FIN 3210, LAW 2810 or LAW 4720. 12 credits of electives must be at the 3000-4000 level. The entry-level MHIIM program at UTHSC is online.

General Curriculum Pre-Medical Technology

It is recommended that Pre-Medical Technology students research the requirements at the various med tech schools and see a Pre-Professional advisor with specific questions regarding the different entrance pathways. Entrance into Med Tech programs is competitive and is not guaranteed solely by completing the prerequisite coursework outlined below.

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.
CHEM 1110 - General Chemistry I Credit: 4.
ENGL 1010 - English Composition I Credit: 3.
MATH 1130 - College Algebra Credit: 3.

UNPP 1020 - University Pre-Professional, First-Year Interactions and Advisement Credit: 1.

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.
CHEM 1120 - General Chemistry II Credit: 4.
ENGL 1020 - English Composition II Credit: 3.
Humanities/Fine Arts Electives Credit: 3.
PSY 1030 - Introduction to Psychology Credit: 3.

Total: 17

Sophomore Year

First Semester

BIOL 2010 - Human Anatomy and Physiology I Credit: 4.
CHEM 3010 - Organic Chemistry I Credit: 4.
COMM 2025 - Fundamentals of Communication Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

Total: 14

Second Semester

BIOL 3230 - Health Science Microbiology Credit: 4.
CHEM 3020 - Organic Chemistry II Credit: 4.
Electives Credit: 7. ¹

Total: 15

Junior Year

First Semester

BIOL 4040 (5040) - Immunology Credit: 3.
Electives Credit: 12. ¹

Total: 15

Second Semester

Electives Credit: 15. ¹

Total: 15

Note:

¹ For students intending to earn a Bachelor's degree before entering professional school, it is recommended that elective courses be taken from general education core requirements, a selected degree program, or the following recommended electives: HIST 2010, HIST 2020, BIOL 2020, BIOL 3810, CHEM 3410, CHEM 4610 (5610) or CHEM 4500, and CHEM 3420.

General Curriculum Pre-Medicine

Students should earn at least 120 credit hours and a B.S. or B.A. degree to be competitive for admission to medical school. It is recommended that elective hours be taken from general education core requirements or a selected bachelor's degree program. Additional courses in chemistry and biology are suggested. Entrance into medical school is very competitive and is not guaranteed solely by completing the prerequisite coursework outlined below. Consult with your advisor regularly about

academic and non-academic factors associated with medical school admissions.

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.
CHEM 1110 - General Chemistry I Credit: 4.
Elective Credit: 3. ¹
ENGL 1010 - English Composition I Credit: 3.
UNPP 1020 - University Pre-Professional, First-Year Interactions and Advisement Credit: 1.

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.
CHEM 1120 - General Chemistry II Credit: 4.
ENGL 1020 - English Composition II Credit: 3.
PSY 1030 - Introduction to Psychology Credit: 3.
SOC 1010 - Introduction to Sociology Credit: 3.

Total: 17

Sophomore Year

First Semester

CHEM 3010 - Organic Chemistry I Credit: 4.
Electives (Humanities - 3 hours) Credit: 3. ¹

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

MATH 3070 - Statistical Methods I Credit: 3.
or MATH 1530 – Introductory Statistics Credit: 3
PHYS 2010 - Algebra-based Physics I Credit: 4.

Total: 17

Second Semester

CHEM 3020 - Organic Chemistry II Credit: 4.
Electives Credit: 7. ¹
PHYS 2020 - Algebra-based Physics II Credit: 4.

Total: 15

Junior Year

First Semester

BIOL Elective Credit: 4.
CHEM 4610 (5610) - General Biochemistry I Credit: 3.
Electives Credit: 9. ¹

Total: 16

Second Semester

CHEM 4620 (5620) - General Biochemistry II Credit: 3.
Electives Credit: 9. ¹

Total: 12

Notes:

It is recommended that students have at least 120 semester hours credit or a B.A. or B.S. degree to be competitive for admission.

¹ For students intending to earn a Bachelor's degree before entering professional school, it is recommended that elective hours be taken from core requirements or a selected degree program. Additional courses in Chemistry and Biology are suggested.

General Curriculum Pre-Occupational Therapy

Students should earn at least 120 credit hours and a B.S. or B.A. degree to be competitive for admission to occupational therapy school. It is recommended that elective hours be taken from general education core requirements or a selected bachelor's degree program. Entrance into occupational therapy school is very competitive and is not guaranteed solely by completing the prerequisite coursework outlined below. Consult with your advisor regularly about academic and non-academic factors associated with occupational therapy school admissions.

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.
CHEM 1110 - General Chemistry I Credit: 4.
ENGL 1010 - English Composition I Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
UNPP 1020 - University Pre-Professional, First-Year Interactions and Advisement Credit: 1.

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.
ENGL 1020 - English Composition II Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
PSY 1030 - Introduction to Psychology Credit: 3.
SOC 1010 - Introduction to Sociology Credit: 3.

Total: 16

Sophomore Year

First Semester

BIOL 2010 - Human Anatomy and Physiology I Credit: 4.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

PHYS 2010 - Algebra-based Physics I Credit: 4.
PSY 2130 - Life Span Development Psychology Credit: 3.

Total: 14

Second Semester

BIOL 2020 - Human Anatomy and Physiology II Credit: 4.
COMM 2025 - Fundamentals of Communication Credit: 3.
Elective Credit: 3.¹

PSY 4160 (5160) - Abnormal Psychology Credit: 3.
PSY 4300 (5300) - Adult Psychology Credit: 3.

Total: 16

Junior Year

First Semester

Electives Credit: 9.¹
EXPW 4420 - Kinesiology Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3. ²

Total: 15

Second Semester

Electives Credit: 12-14.¹
HEC 2220 - Medical Terminology for the Human Sciences Credit: 1. or
HIMT 1300 Medical Terminology Credit: 3.

Total: 13-15

Note:

¹ For students intending to earn a Bachelor's degree before entering professional school, it is recommended that elective hours be taken from core requirements or a selected degree program.

² Occupational Therapy (OTD and MS) programs generally require a course in statistics. Courses from various departments may satisfy this requirement.

General Curriculum Pre-Optometry

Students should earn at least 120 credit hours and a B.S. or B.A. degree to be competitive for admission to optometry school. It is recommended that elective hours be taken from general education core requirements or a selected bachelor's degree program. Entrance into optometry school is very competitive and is not guaranteed solely by completing the prerequisite coursework outlined below. Consult with your advisor regularly about academic and non-academic factors associated with optometry school admissions.

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.
CHEM 1110 - General Chemistry I Credit: 4.
ENGL 1010 - English Composition I Credit: 3.
MATH 1730 - Pre-calculus Mathematics Credit: 5.
UNPP 1020 - University Pre-Professional, First-Year Interactions and Advisement Credit: 1.

Total: 17

Second Semester

BIOL 1123 - General Biology II Credit: 4.
CHEM 1120 - General Chemistry II Credit: 4.
ENGL 1020 - English Composition II Credit: 3.
MATH 1910 - Calculus I Credit: 4.

Total: 15

Sophomore Year

First Semester

CHEM 3010 - Organic Chemistry I Credit: 4.
Elective Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3. or
MATH 3070 Statistical Methods I Credit: 3.
PHYS 2010 - Algebra-based Physics I Credit: 4.

Total: 17

Second Semester

CHEM 3020 - Organic Chemistry II Credit: 4.
Elective Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
PHYS 2020 - Algebra-based Physics II Credit: 4.

Total: 14

Junior Year

First Semester

CHEM 4610 (5610) - General Biochemistry I Credit: 3.

General Education Core or Major Credit: 9.

PSY 1030 - Introduction to Psychology Credit: 3.

Total: 15

Second Semester

BIOL 3230 - Health Science Microbiology Credit: 4.
Social Science Credit: 6.

General Education Core or Major Credit: 3.

Total: 13

Note:

¹ For students intending to earn a Bachelor's degree before entering professional school, it is recommended that elective hours be taken from core requirements or a selected degree program. BIOL 2010 - Human Anatomy and Physiology I, BIOL 2020 - Human Anatomy and Physiology II, and BIOL 3140 - Cellular Biology are highly recommended at some optometry schools.

General Curriculum Pre-Pharmacy

General curriculum track with a pre-professional (health) focus

It is recommended that Pre-Pharmacy students research the requirements at the various Pharmacy schools and see a Pre-Professional advisor with specific questions regarding the different entrance pathways. The Pre-Pharmacy requirements at most Pharmacy schools may be completed in two to three years. Many students elect to apply to Pharmacy school after completing three years of prerequisite coursework in order to improve their science background, maturity and competitiveness. Others complete a Bachelor's degree before matriculating to Pharmacy school. Students with an interest in chemistry may elect to follow the first three years of coursework towards the Applied Chemistry major and earn a Bachelor of Science Degree with a major in Chemistry from TTU after completing their first year of Pharmacy school.

Entrance into a Doctor of Pharmacy program is competitive and is not guaranteed solely by completing the prerequisite coursework outlined below.

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.
CHEM 1110 - General Chemistry I Credit: 4.
ENGL 1010 - English Composition I Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3. or
MATH 3070 Statistical Methods I Credit: 3.
UNPP 1020 - University Pre-Professional, First-Year Interactions and Advisement Credit: 1.

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.
CHEM 1120 - General Chemistry II Credit: 4.
ENGL 1020 - English Composition II Credit: 3.

MATH 1830 - Applied Calculus Credit: 3. or ¹
MATH 1910 - Calculus I Credit: 4. ¹

Total: 14-15

Sophomore Year

First Semester

CHEM 3010 - Organic Chemistry I Credit: 4.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

PHYS 2010 - Algebra-based Physics I Credit: 4.
Social/Behavioral Science Elective Credit: 3.

Total: 14

Second Semester

BIOL 3230 - Health Science Microbiology Credit: 4.
CHEM 3020 - Organic Chemistry II Credit: 4.
ECON 2010 - Principles of Microeconomics Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Social/Behavioral Science Elective Credit: 3.

Total: 17

Junior Year

First Semester

BIOL 2010 - Human Anatomy and Physiology I Credit: 4.

COMM 2025 - Fundamentals of Communication Credit: 3.

Elective (may include a second communication skills course) Credit: 6.²

Humanities/Fine Arts Elective Credit: 3.

Total: 16

Second Semester

BIOL 2020 - Human Anatomy and Physiology II Credit: 4.

Electives Credit: 6.²

Social/Behavioral Science Elective Credit: 3.

Total: 13

Note:

For students intending to earn a Bachelor's degree before entering professional school, it is recommended that elective hours be taken from core requirements or a selected degree program.

¹ Some B.S. majors including Chemistry, Physics, Math, and Engineering require MATH 1910 while others such as Biology may require MATH 1830.

² Beginning Fall 2018, Belmont University College of Pharmacy requires a second communication skills course for applicants without a Bachelor's Degree. This course should be designed to improve communication skills and may include a third writing course.

General Curriculum Pre-Physical Therapy

Students should earn at least 120 credit hours and a B.S. or B.A. degree to be competitive for admission to physical therapy school. It is recommended that elective hours be taken from general education core requirements or a selected bachelor's degree program. Entrance into physical therapy school is very competitive and is not guaranteed solely by completing the prerequisite coursework outlined below. Consult with your advisor regularly about academic and non-academic factors associated with physical therapy school admissions.

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.
CHEM 1110 - General Chemistry I Credit: 4.
ENGL 1010 - English Composition I Credit: 3.

MATH 1130 - College Algebra Credit: 3. or
MATH 1710 - Pre-calculus Algebra Credit: 3.

UNPP 1020 - University Pre-Professional, First-Year
Interactions and Advisement Credit: 1.

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.
CHEM 1120 - General Chemistry II Credit: 4.
ENGL 1020 - English Composition II Credit: 3.
Humanities/Fine Arts Elective Credit: 3.

Total: 14

Sophomore Year

First Semester

BIOL 2010 - Human Anatomy and Physiology I
Credit: 4.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

PHYS 2010 - Algebra-based Physics I Credit: 4.
PSY 1030 - Introduction to Psychology Credit: 3.
Elective Credit: 3.¹

Total: 17

Second Semester

BIOL 2020 - Human Anatomy and Physiology II
Credit: 4.

PHYS 2020 - Algebra-based Physics II Credit: 4.
PSY 2130 - Life Span Development Psychology
Credit: 3.

Elective Credit: 3.¹

Total: 14

Junior Year

First Semester

Electives Credit: 10.¹

EXPW 4440 - Physiology of Exercise Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3.²

Total: 16

Second Semester

Electives Credit: 15.¹

Total: 15

Note:

¹ It is recommended that elective hours be taken from core requirements or a selected degree program.

² Doctor of Physical Therapy (DPT) programs generally require a course in statistics. Courses from various departments may satisfy this requirement.

General Curriculum Pre-Physician Assistant

Students should earn at least 120 credit hours and a B.S. or B.A. degree to be competitive for admission to physician Assistant school. It is recommended that elective hours be taken from general education core requirements or a selected bachelor's degree program. Entrance into physician assistant programs is very competitive and is not guaranteed solely by completing the prerequisite coursework outlined below. Consult with your advisor regularly about academic and non-academic factors associated with physician assistant program admissions.

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.
CHEM 1110 - General Chemistry I Credit: 4.
ENGL 1010 - English Composition I Credit: 3.
MATH Elective Credit: 3.¹

UNPP 1020 - University Pre-Professional, First-Year
Interactions and Advisement Credit: 1.

Total: 15

Second Semester

BIOL 1123 - General Biology II Credit: 4.
ENGL 1020 - English Composition II Credit: 3.
CHEM 1120 - General Chemistry II Credit: 4.

MATH Elective Credit: 3.¹

PSY 1030 - Introduction to Psychology Credit: 3.

Total: 17

Sophomore Year

First Semester

BIOL 2010 - Human Anatomy and Physiology I
Credit: 4.

General Education Core or Major Credit: 3.

CHEM 3010 - Organic Chemistry I Credit: 4.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

PSY 2130 - Life Span Development Psychology
Credit: 3.

Total: 17

Second Semester

BIOL 2020 - Human Anatomy and Physiology II
Credit: 4.

CHEM 3020 - Organic Chemistry II Credit: 4.

General Education Core or Major Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Total: 14

Junior Year

First Semester

BIOL 3810 - General Genetics Credit: 4.

CHEM 4610 (5610) - General Biochemistry I Credit:
3.

General Education Core or Major Credit: 6.

HEC 2220 - Medical Terminology for the Human
Sciences Credit: 1. or

HIMT 1300 Medical Terminology Credit: 3.

Total: 14-16

Second Semester

BIOL 3230 - Health Science Microbiology Credit: 4.

COMM 2025 - Fundamentals of Communication
Credit: 3.

General Education Core or Major Credit: 4-6.

PSY 4160 (5160) - Abnormal Psychology Credit: 3.

Total: 14-16

Note:

A course in College Algebra (MATH 1130) or higher
¹ and a course in Statistics fulfills the math requirements
at most PA schools.

Physician Assistant Master's Degree Programs require
a Bachelor's degree prior to admission.

The Graduate Record Exam (GRE) must be taken for
most PA programs.

Health care experience hours, especially those that
require direct patient interaction, are required by most

PA programs. Job shadowing with a PA is also highly
recommended.

Additional recommended courses for competitive entry
into Physician Assistant Programs
include: Biochemistry, Cell Biology, Immunology,
Embryology, Parasitology, Psychology, and other
advanced Biology and Chemistry courses.

Department of Civil and Environmental Engineering

Civil Engineering, B.S.C.E (Leading to the Bachelor of Science in Civil Engineering Degree)

Curriculum

Freshman Year

First Semester

CHEM 1110 - General Chemistry I Credit: 4. ¹

ENGL 1010 - English Composition I Credit: 3.

ENGR 1110 - Engineering Graphics Credit: 2.

Humanities/Fine Arts Elective Credit: 3.

MATH 1910 - Calculus I Credit: 4.

CEE 1020 - Connections to Civil and Environmental
Engineering Credit: 1. ²

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

ENGR 1120 - Programming for Engineers Credit: 2.

Humanities/Fine Arts Elective Credit: 3.

MATH 1920 - Calculus II Credit: 4.

Natural Science Credit: 4. ¹

Total: 16

Sophomore Year

First Semester

CEE 2110 - Statics Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

MATH 2110 - Calculus III Credit: 4.

Natural Science Credit: 4. ¹

Social/Behavioral Science Elective Credit: 3.

Total: 17

Second Semester

CEE 3020 - Surveying Credit: 3.

CEE 3110 - Mechanics of Materials Credit: 3.

MATH 2120 - Differential Equations Credit: 3.

ME 2330 - Dynamics Credit: 3.

Social/Behavioral Science Elective Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Total: 18

Junior Year

First Semester

CEE 3320 - Structural Mechanics Credit: 3.
CEE 3413 - Environmental Engineering Credit: 3.
CEE 3610 - Transportation Engineering Credit: 3.
ME 3720 - Fluid Mechanics Credit: 3.
MATH Elective Credit: 3.³
Approved CEE Lab Elective Credit: 1.⁶

Total: 16

Second Semester

CEE 3030 - Civil Engineering Materials Credit: 3.
CEE 3420 - Hydraulics Credit: 3.
CEE 3710 - Principles of Engineering Economy
Credit: 2.
GEOL 3210 - Geology for Engineers Credit: 3.
CEE 4310 - Structural Steel Design Credit: 3.

CEE 3720 - Engineering Statistics Credit: 2. or
MATH 3470 - Introductory Probability and Statistics
Credit: 3.

Total: 16

Senior Year

First Semester

CEE 4320 - Reinforced Concrete Design Credit: 3.
CEE 4800 - Geotechnical Engineering Credit: 3.
CEE 4920 - Professionalism and Ethics Credit: 1.
CEE 4940 - Fundamentals of Civil Engineering
Credit: 0.
Approved CEE Elective Credit: 3.⁴
Approved CEE Sequence Credit: 3.⁵

ECE 2010 - Electric Circuits I Credit: 3. or
ECE 3810 - Fundamentals of Electrical Engineering
Credit: 3. or
ME 3210 - Thermodynamics I Credit: 3. or
CHE 3010 - Thermodynamics of Chemical
Processes Credit: 3.

Total: 16

Second Semester

CEE 4950 - Senior Design Project Credit: 3.
Approved CEE Lab Elective Credit: 1.⁶
Approved CEE Elective Credit: 6.⁴
Approved CEE Sequence Credit: 3.⁵

Total: 13

Note:

¹CHEM 1110 and PHYS 2110 are required. Students select either CHEM 1120 or PHYS 2120. Students who intend to pursue the environmental area of emphasis should take CHEM 1120.

²This course not included in 128-hour curriculum.

³MATH 2010, MATH 3810, MATH 4210 (5210) or MATH 4510 (5510).

⁴Approved CEE Electives: CEE 3100, any 4000-level CEE course.

⁵Approved CEE Sequences:

CEE 4130 (5130), CEE 4160 (5160), CEE 4190 (5190)
CEE 4130 (5130), CEE 4350 (5350), CEE 4360 (5360), CEE 4380 (5380), CEE 4700 (5700)
CEE 4410 (5410), CEE 4420 (5420), CEE 4430 (5430), CEE 4440 (5440), CEE 4450 (5450)
CEE 4600 (5600), CEE 4610 (5610), CEE 4630 (5630), CEE 4640 (5640), CEE 4660 (5660)

Structural Mechanics
Structural Engineering
Environmental Engineering
Transportation Engineering

⁶Select 1 of the following 3 CEE lab courses: CEE 3040, CEE 3120, CEE 3430. Students who select or plan to select the structural mechanics or structures option should take CEE 3120; environmental students should take CEE 3430.

Department of Computer Science

Computer Science, Data Science, B.S. (Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

CSC 1300 - Introduction to Problem Solving and
Computer Programming Credit: 4.
ENGL 1010 - English Composition I Credit: 3.
ENGR 1020 - Connections to Engineering and
Technology Credit: 1.¹
HIST 2010 - Early United States History Credit: 3.
MATH 1910 - Calculus I Credit: 4.

Total: 15

Second Semester

CSC 1310 - Data Structures and Algorithms Credit:
4.
ENGL 1020 - English Composition II Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
MATH 1920 - Calculus II Credit: 4.
Social/Behavioral Science Elective Credit: 3.²
(ECON 2010 or ECON 2020 recommended)

Total: 17

Sophomore Year

First Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

CSC 2310 - Object-Oriented Programming and
Design Credit: 4.
CSC 2500 - Unix Lab Credit: 1.

CSC 2700 - Discrete Structures for Computer Science Credit: 3.

Science Sequence Credit: 4.³

Total: 15

Second Semester

CSC 2400 - Design of Algorithms Credit: 3.

CSC 3710 - Foundations of Computer Science Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

MATH 2010 - Introduction to Linear Algebra Credit: 3.

Science Sequence Credit: 4.³

Total: 16

Junior Year

First Semester

CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.

CSC 3300 - Database Management Systems Credit: 3.

CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.

Humanities/Fine Arts Elective Credit: 3.²

MATH 3070 - Statistical Methods I Credit: 3. or

MATH 3470 - Introductory Probability and Statistics Credit: 3.

Total: 15

Second Semester

CSC 3220 - Fundamentals of Data Science Credit: 3.

CSC 4320 (5320) - Computer Architecture Credit: 3.

CSC Elective Credit: 3.

Data Science Application Elective Credit: 3.⁴

Natural Science Credit: 4.

Total: 16

Senior Year

First Semester

CSC 4100 (5100) - Operating Systems Credit: 3.

CSC 4220 - Data Mining and Machine Learning Credit: 3.

CSC 4610 - Software Engineering I Credit: 3.
Humanities/Fine Arts Elective Credit: 3.²

Total: 15

Second Semester

CSC 4040 - Undergraduate Computing Research Experience Credit: 3. or

CSC 4990 - Computer Science Internship Credit: 3 or 6. (Data Science only) Credit: 3.

CSC 4200 (5200) - Computer Networks Credit: 3.

CSC 4620 - Software Engineering II Credit: 3.

Data Science Technical Elective Credit: 3.⁵

Social/Behavioral Science Elective Credit: 3.²

Total: 15

Note:

Not required for transfer students with more than 12¹ hours and not included in the 120-hour degree requirement.

²See TTU General Education Core Requirements.

³Take at least one science sequence from BIOL 1113-BIOL 1123, BIOL 1113-BIOL 2310, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045, PHYS 2010-PHYS 2020 or PHYS 2110-PHYS 2120. The remaining 4-hour science elective must be in a different discipline from the science sequence.

Select from one of the following: CSC 3230, CSC 4575⁴(5575), GEOG 4510 (5510), MET 4650 (5650), MKT 3400 or BIOL 3810.

⁵Select from one of the following: CSC 4240 (5240) or CSC 4760 (5760).

Computer Science, High Performance Computing, B.S.

(Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

ENGR 1020 - Connections to Engineering and Technology Credit: 1. ¹

HIST 2010 - Early United States History Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Total: 15

Second Semester

CSC 1310 - Data Structures and Algorithms Credit: 4.

ENGL 1020 - English Composition II Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

MATH 1920 - Calculus II Credit: 4.

Social/Behavioral Science Elective Credit: 3.²

Total: 17

Sophomore Year

First Semester

CSC 2310 - Object-Oriented Programming and Design Credit: 4.

CSC 2500 - Unix Lab Credit: 1.

CSC 2700 - Discrete Structures for Computer Science Credit: 3.

MATH 2010 - Introduction to Linear Algebra Credit: 3.

Science Sequence Credit: 4.³

Total: 15

Second Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

CSC 2400 - Design of Algorithms Credit: 3.
CSC 3710 - Foundations of Computer Science Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

Science Sequence Credit: 4.³

Total: 16

Junior Year

First Semester

CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
CSC 3300 - Database Management Systems Credit: 3.
CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.
Lab Science Credit: 4.

MATH 3070 - Statistical Methods I Credit: 3. or
MATH 3470 - Introductory Probability and Statistics Credit: 3.

Total: 16

Second Semester

CSC 3220 - Fundamentals of Data Science Credit: 3.
CSC 4200 (5200) - Computer Networks Credit: 3.
CSC 4320 (5320) - Computer Architecture Credit: 3.
CSC Elective Credit: 3.
Social/Behavioral Science Elective Credit: 3.²

Total: 15

Senior Year

First Semester

CSC 4100 (5100) - Operating Systems Credit: 3.
CSC 4610 - Software Engineering I Credit: 3.
CSC 4760 (5760) - Parallel Programming Credit: 3.
Humanities/Fine Arts Elective Credit: 3.²
Elective Credit: 3.

Total: 15

Second Semester

CSC 4620 - Software Engineering II Credit: 3.
CSC 4770 - Distributed and Cloud Computing Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
HPC Technical Elective Credit: 3.⁴

Total: 12

Note:

Not required for transfer students with more than 12 hours and not included in the 120-hour degree requirement.

²See TTU General Education Core Requirements.

³The sequence must be one of the following: BIOL 1113-BIOL 1123, BIOL 1113-BIOL 2310, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045, PHYS 2010-PHYS 2020 or PHYS 2110-PHYS 2120. The other lab science must be from a different discipline than the sequence.

⁴Select from one of the following: CSC 3020, CSC 4010 (5010), CSC 4220, and CSC 4400 (5400).

**Computer Science, Information Assurance and Cyber-security Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
HIST 2010 - Early United States History Credit: 3.
MATH 1910 - Calculus I Credit: 4.
Social/Behavioral Science Elective Credit: 3.²
CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
ENGR 1020 - Connections to Engineering and Technology Credit: 1. ¹

Total: 17

Second Semester

ENGL 1020 - English Composition II Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
MATH 1920 - Calculus II Credit: 4.
CSC 1310 - Data Structures and Algorithms Credit: 4.

Total: 14

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit: 3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

First Science Sequence Credit: 4.³

MATH 2010 - Introduction to Linear Algebra Credit: 3.

CSC 2400 - Design of Algorithms Credit: 3.
CSC 2700 - Discrete Structures for Computer Science Credit: 3.

Total: 16

Second Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or
PC 2500 - Communicating in the Professions Credit: 3.

First Science Sequence Credit: 4.³

CSC 2310 - Object-Oriented Programming and Design Credit: 4.

CSC 2500 - Unix Lab Credit: 1.

CSC 2560 - Networks for Information Technologists Credit: 3.

CSC 3710 - Foundations of Computer Science
Credit: 3.

Total: 18

Junior Year

First Semester

MATH 3070 - Statistical Methods I Credit: 3. or
MATH 3470 - Introductory Probability and Statistics
Credit: 3.

Humanities/Fine Arts Elective Credit: 3.²

CSC 3410 - Computer Organization and Assembly
Language Programming Credit: 3.

CSC 4575 (5575) - Information Assurance and
Cryptography Credit: 3.

CSC or Cyber-Security Elective Credit: 3.⁵

Total: 15

Second Semester

Humanities/Fine Arts Elective Credit: 3.²

CSC 3040 - Professionalism, Communication and
Research in Computing Credit: 3.

CSC 3300 - Database Management Systems Credit:
3.

CSC 4320 (5320) - Computer Architecture Credit: 3.
Natural Science Credit: 4.⁴

Total: 16

Senior Year

First Semester

Social/Behavioral Science Elective Credit: 3.²

CSC 4570 (5570) - IT Security Credit: 3.

CSC 4610 - Software Engineering I Credit: 3.

CSC Elective Credit: 3.

Total: 12

Second Semester

CSC 4100 (5100) - Operating Systems Credit: 3.

CSC 4200 (5200) - Computer Networks Credit: 3.

CSC 4620 - Software Engineering II Credit: 3.

Elective Credit: 3.

Total: 12

Note:

¹ Not required for transfer students with more than 12
hours and not included in the 120-hour degree
requirement.

² See TTU General Education Core Requirements.

³ Take at least one science sequence from BIOL 1113-
BIOL 1123, BIOL 1113-BIOL 2310, CHEM 1110-CHEM
1120, GEOL 1040-GEOL 1045, PHYS 2010-PHYS
2020 or PHYS 2110-PHYS 2120.

The remaining 4-hour science elective must be in a
different discipline from the science sequence.

⁴ Must be a different discipline than the required science
sequence.

⁵ At least 3 credit hours must come from the approved
list of Cyber-Security Electives: CSC 3220, CSC 4220,

CSC 4580, CSC 4760 (5760), CSC 4770, CJ 3640, DS
4125.

**Computer Science, Software and Scientific
Applications Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH 1910 - Calculus I Credit: 4.

CSC 1300 - Introduction to Problem Solving and
Computer Programming Credit: 4.

ENGR 1020 - Connections to Engineering and
Technology Credit: 1. ¹

HIST 2010 - Early United States History Credit: 3.

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

MATH 1920 - Calculus II Credit: 4.

Social/Behavioral Science Elective Credit: 3.²

CSC 1310 - Data Structures and Algorithms Credit:
4.

Total: 17

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

First Science Sequence Credit: 4.³

CSC 2310 - Object-Oriented Programming and
Design Credit: 4.

CSC 2700 - Discrete Structures for Computer
Science Credit: 3.

MATH 2010 - Introduction to Linear Algebra Credit:
3.

Total: 17

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

First Science Sequence Credit: 4.⁴

CSC 2400 - Design of Algorithms Credit: 3.

CSC 2500 - Unix Lab Credit: 1.

CSC 3710 - Foundations of Computer Science
Credit: 3.

Total: 14

Junior Year

First Semester

CSC 3300 - Database Management Systems Credit:
3.

CSC 3410 - Computer Organization and Assembly Language Programming Credit: 3.
Humanities/Fine Arts Elective Credit: 3.²
Second Science Sequence Credit: 4.³

MATH 3070 - Statistical Methods I Credit: 3. or
MATH 3470 - Introductory Probability and Statistics Credit: 3.

Total: 16

Second Semester

CSC 3040 - Professionalism, Communication and Research in Computing Credit: 3.
CSC 4320 (5320) - Computer Architecture Credit: 3.
CSC Upper-Division Elective Credit: 3.⁴
CSC Elective Credit: 3.⁵
Humanities/Fine Arts Elective Credit: 3.²

Total: 15

Senior Year

First Semester

CSC 4610 - Software Engineering I Credit: 3.
4000-level CSC Elective Credit: 3
Electives Credit: 6.
Social/Behavioral Science Elective Credit: 3.²

Total: 15

Second Semester

CSC 4100 (5100) - Operating Systems Credit: 3.
CSC 4200 (5200) - Computer Networks Credit: 3.
CSC 4620 - Software Engineering II Credit: 3.
Electives Credit: 3.

Total: 12

Note:

¹ Not required for transfer students with more than 12 hours.

² See TTU General Education Core Requirements.

³ Take at least one science sequence from BIOL 1113-BIOL 1123, BIOL 1113-BIOL 2310, CHEM 1110-CHEM 1120, GEOL 1040-GEOL 1045, PHYS 2010-PHYS 2020 or PHYS 2110-PHYS 2120. The remaining 4-hour science elective must be in a different discipline from the science sequence.

⁴ Take any additional 3000- or 4000-level CSC course except CSC 4990.

Department of Communication

Communication, Communication Studies

Concentration, B.S.

(Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

JOUR 2200 - Mass Communication in a Changing Society Credit: 3.

COMM 1020 - Foundations of Communication Credit: 3

Natural Science Credit: 4.

UNIV 1020 - First-Year Connections Credit: 1. ⁵

Elective Credit: 1.

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.
COMM 2025 - Fundamentals of Communication Credit: 3.
MATH Credit: 3.
Natural Science Credit: 4.
Social/Behavioral Science Elective Credit: 3.

Total: 16

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit: 3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Electives Credit: 6.²

Total: 15

Second Semester

HIST 2020 - Modern United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
Social/Behavioral Science Elective Credit: 3.
COMM 2075 - Organizational Communication Credit: 3.
COMM 2090 - Interpersonal Communication Credit: 3.

Total: 15

Junior Year

First Semester

COMM 3100 - Communication Theory Credit: 3.
JOUR 3770 - Law of Journalism Credit: 3.
COMM 3630 - Discussion and Parliamentary Procedure Credit: 3.
Communication Theory Elective Credit: 3.²
Communication Application Elective Credit: 3.³

Total: 15

Second Semester

COMM 3200 - Research Methods in Communication Credit: 3.
COMM 3620 - Intercultural Communication Credit: 3.
Communication Theory Elective Credit: 3.²
Mass Communication Application Elective Credit: 3.¹
Elective Credit: 3.

Total: 15

Senior Year

First Semester

COMM 4630 (5630) - Persuasion Credit: 3.
Communication Theory Elective Credit: 3.³

Communication Application Elective Credit: 3.⁴
Electives Credit: 6.

Total: 15

Second Semester

COMM 4620 (5620) - Advanced Public Speaking
Credit: 3.

Communication Theory Elective Credit: 3.³

Communication Application Elective Credit: 3.⁴

Electives Credit: 6.

Total: 15

Note:

¹ Students may choose from the following: JOUR 2100,
JOUR 3400, JOUR 3460, JOUR 3750.

² Elective course to be selected in consultation with
academic advisor.

³ Students may choose from the following: COMM 3000,
COMM 3080, COMM 3120, COMM 4030, COMM 4410,
COMM 4430, COMM 4440, COMM 4603, COMM 4900.

⁴ Students may choose from the following: COMM 2000
COMM 2800, COMM 3030, COMM 3130, COMM 3400,
COMM 4540, COMM 4550, COMM 4603, COMM 4850,
COMM 4900.

⁵ This course is not included in the 120-hour curriculum.

Communication, Journalism Concentration, News Editorial Option, B.S.

**(Leading to the Bachelor of Science Degree with a
concentration in Journalism)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

JOUR 2200 - Mass Communication in a Changing
Society Credit: 3.

MATH Credit: 3.

Natural Science Credit: 4.

UNIV 1020 - First-Year Connections Credit: 1. ¹

Elective Credit: 1.

Total: 14

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

SOC 1010 - Introduction to Sociology Credit: 3.

Natural Science Credit: 4.

GEOG 1012 - Cultural Geography Credit: 3.

Total: 16

Sophomore Year

First Semester

HIST 2010 - Early United States History Credit: 3.

JOUR 2220 - News Reporting and Copy-Editing
Credit: 3.

JOUR 3350 - Newspaper Production and Design
Credit: 3.

JOUR 3460 - Introduction to Public Relations Credit:
3.

JOUR 3740 - Advertising Copy and Layout Credit: 3.

Total: 15

Second Semester

JOUR 3370 - Fundamentals of Photojournalism

Credit: 3. or

JOUR 3400 - Introduction to Broadcast Journalism

Credit: 3. or

JOUR 3500 - Multimedia Storytelling Credit: 3.

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

POLS 1030 - American Government Credit: 3.

COMM 2090 - Interpersonal Communication Credit:

3.

Total: 15

Junior Year

First Semester

Humanities/Fine Arts Elective Credit: 3.

COMM 3100 - Communication Theory Credit: 3.

COMM 3620 - Intercultural Communication Credit: 3.

JOUR 3750 - History of Journalism Credit: 3.

Emphasis Area Course Credit: 3.²

Total: 15

Second Semester

COMM 3200 - Research Methods in Communication
Credit: 3.

JOUR 3770 - Law of Journalism Credit: 3.

Emphasis Area Course Credit: 3.²

Social/Behavioral Science Elective Credit: 6.

Total: 15

Senior Year

First Semester

Humanities/Fine Arts Elective Credit: 3.

JOUR 4820 (5820) - Advanced Reporting Credit: 3.

PSY 1030 - Introduction to Psychology Credit: 3.

Emphasis Area Course Credit: 3.²

Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

JOUR 4710 - Literary Journalism Credit: 3. or

JOUR 4830 (5830) - Feature Writing Credit: 3.

JOUR 4360 (5360) - Magazine Production and
Design Credit: 3.

JOUR 4930 (5930) - Advanced Copy-Editing Credit:
3.

Emphasis Area Course Credit: 3.²

Elective Credit: 3.

Total: 15

Note:

¹ This course not included in 120-hour curriculum.

² Emphasis Area Courses

Communication Options:

Agricultural Communication

The Agricultural Communication Option is designed to prepare students for various careers in Communication in Agriculture.

Courses in Agricultural Communication

Students take three of the following Agricultural courses and one internship:

- AGBE 2010 - World Food and Society Credit: 3.
- AGBE 2100 - Economics of Agriculture Credit: 3.
- AGED 4150 (5150) - Communications and Public Relations in Agricultural and Extension Education Credit: 3.
- JOUR 4853 (5853) - Internship Credit: 3.
- JOUR 4856 (5856) - Internship Credit: 6.
- JOUR 4859 (5859) - Internship Credit: 9.

Environmental Communication

The Environmental Communication option is designed to prepare students for various careers in appropriate communication areas and in newspapers, magazines and government to provide background and experience in preparing students for those careers, the curriculum places emphasis on practices and problems.

Courses in Environmental Communication

Students take four of the following courses. Only one internship may count toward the four.

- AGBE 2010 - World Food and Society Credit: 3.
- AGBE 4120 (5120) - Natural Resource Economics Credit: 3.
- GEOL 1045 - Earth Environment, Resources and Society Credit: 4.
- GEOL 2000 - Earth Evolution and Life History Credit: 3.
- JOUR 4853 (5853) - Internship Credit: 3.
- JOUR 4856 (5856) - Internship Credit: 6.
- JOUR 4859 (5859) - Internship Credit: 9.
- BIOL 3120 - General Ecology Credit: 3.
- ESS 3710 - Chemistry and the Environment Credit: 3.

Digital Electronic Multi-Media

The Digital Electronic Multi-Media option is designed to prepare students for various careers in the area of electronic publishing. The curriculum is characterized by an emphasis on analytical methods for business problem solving, information technology applications and electronic publishing, preparing students to serve as a web master for a newspaper, magazine or public relations department.

Courses in Digital Electronic Multi-Media

Students take four of the following courses:

- COMM 3000 - Computer Mediated Communication Credit: 3.

COMM 3120 - Visual Communication/Rhetoric Credit: 3.

COMM 4440 - Semiotics Credit: 3.

JOUR 4500 - Advanced Multimedia Storytelling Credit: 3.

JOUR 4853 (5853) - Internship Credit: 3.

Sports Multi-Media Communication

The Sports Multi-Media Communication Option is designed to prepare students for various careers in the area of sports. The curriculum is characterized by an emphasis on sports management and coaching to provide background and experience in sports communication preparing students for a career as a sports/columnist or in sports public relations. Hands-on experience in radio and television may be gained via internship.

Courses in Sports Multi-Media Communication

Students may take four of the following courses. Only one internship may count toward the total of four.

EXPW 2170 - Introduction to Sport Management Credit: 3.

EXPW 3180 - Introduction to Coaching Credit: 3.

EXPW 3300 - Sports Officiating Credit: 2.

EXPW 4171 - Exercise and Sport Psychology Credit: 3.

EXPW 4540 - Ethical Issues in Sport Credit: 3.

EXPW 4550 - Sport Governance Credit: 3.

JOUR 4853 (5853) - Internship Credit: 3.

JOUR 4856 (5856) - Internship Credit: 6.

JOUR 4859 (5859) - Internship Credit: 9.

Writing Fiction and Non-Fiction

The Writing Fiction and Non-Fiction option is designed to extend students' writing experiences beyond the freelance writing course and also prepares them for additional experiences in fiction and non-fiction writing, according to their aspirations.

Courses in Writing Fiction and Non-Fiction

Students take four of the following courses. Only one may include a special problems course.

ENGL 3400 - Introduction to Creative Writing Credit: 3.

ENGL 4430 (5430) - Creative Writing: Fiction Credit: 3.

ENGL 4440 (5440) - Creative Writing: Essay Credit: 3.

ENGL 4450 (5450) - Creative Writing: Poetry Credit: 3.

ENGL 4531 (5531) - Grammar and Language Credit: 3.

JOUR 4843 (5843) - Special Problems Credit: 3.

JOUR 4846 (5846) - Special Problems Credit: 6.

JOUR 4849 (5849) - Special Problems Credit: 9.

Courses in Literature

Students take four of the following courses:

- ENGL 3500 - Mythology Credit: 3.
- ENGL 4111 (5111) - Chaucer Credit: 3.
- ENGL 4121 (5121) - Shakespeare Credit: 3.
- THEA 4121 (5121) - Shakespeare Credit: 3.
- ENGL 4130 (5130) - Milton Credit: 3.
- ENGL 4140 (5140) - Topics in British Literature to 1667 Credit: 3.
- ENGL 4210 (5210) - Eighteenth-Century British Literature Credit: 3.
- ENGL 4221 (5221) - Romantic Literature Credit: 3.
- ENGL 4231 (5231) - Victorian Literature Credit: 3.
- ENGL 4240 (5240) - Topics in British Literature after 1667 Credit: 3.
- ENGL 4250 (5250) - Post Modern Literatures in English Credit: 3.
- ENGL 4310 (5310) - Early American Literature Credit: 3.
- ENGL 4320 (5321) - Nineteenth Century American Literature Credit: 3.
- ENGL 4330 (5330) - Modern American Literature Credit: 3.
- ENGL 4340 (5340) - Topics in American Literature Credit: 3.
- ENGL 4610 (5610) - Novel Credit: 3.
- ENGL 4620 (5620) - Poetry: Form, Genre, Theory Credit: 3.
- ENGL 4630 (5630) - Literary Criticism and Theory Credit: 3.
- ENGL 4712 (5712) - African American Literature Credit: 3.
- ENGL 4713 (5713) - Native American Literature Credit: 3.
- ENGL 4720 (5720) - Continental Literature Credit: 3.
- ENGL 4731 (5731) - Approaches to Women and Literature Credit: 3.
- ENGL 4751 (5751) - Topics in Non-Western Literature Credit: 3.
- ENGL 4810 (5810) - Introduction to Folklore Credit: 3.
- ENGL 4820 - Upper Cumberland Folklore Credit: 3.
- ENGL 4830 (5830) - Southern Literature Credit: 3.
- ENGL 4840 (5840) - The Gothic Tale of Terror Credit: 3.
- ENGL 4911 (5911) - The Literature of Science Credit: 3.
- ENGL 4921 (5921) - Literature and Technology Credit: 3.
- ENGL 4931 (5931) - Literature and the Environment Credit: 3.

Communication, Journalism Concentration, Public Relations Option, B.S.
(Leading to the Bachelor of Science Degree with a concentration in Journalism)

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- JOUR 2200 - Mass Communication in a Changing Society Credit: 3.
- MATH Credit: 3.
- Natural Science Credit: 4.
- Elective Credit: 1.
- UNIV 1020 - First-Year Connections Credit: 1. ¹

Total: 14

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- GEOG 1012 - Cultural Geography Credit: 3.
- Natural Science Credit: 4.
- SOC 1010 - Introduction to Sociology Credit: 3.

Total: 16

Sophomore Year

First Semester

- HIST 2010 - Early United States History Credit: 3.
- JOUR 2220 - News Reporting and Copy-Editing Credit: 3.
- JOUR 3350 - Newspaper Production and Design Credit: 3.
- JOUR 3460 - Introduction to Public Relations Credit: 3.
- JOUR 3740 - Advertising Copy and Layout Credit: 3.

Total: 15

Second Semester

- COMM 2090 - Interpersonal Communication Credit: 3.
- ENGL 2330 - Topics in World Literature Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- PSY 1030 - Introduction to Psychology Credit: 3.

- JOUR 3370 - Fundamentals of Photojournalism Credit: 3. or

- JOUR 3400 - Introduction to Broadcast Journalism Credit: 3. or

- JOUR 3500 - Multimedia Storytelling Credit: 3.

Total: 15

Junior Year

First Semester

- BMGT 3510 - Management and Organization Behavior Credit: 3.

- COMM 3100 - Communication Theory Credit: 3.

- COMM 3620 - Intercultural Communication Credit: 3.

- JOUR 3750 - History of Journalism Credit: 3.

- Emphasis Area Course Credit: 3. ²

Total: 15

Second Semester

- Humanities/Fine Arts Elective Credit: 3.

- COMM 3200 - Research Methods in Communication Credit: 3.

- JOUR 3470 - Public Relations Writing Credit: 3.

JOUR 3770 - Law of Journalism Credit: 3.
Emphasis Area Course Credit: 3.²

Total: 15

Senior Year

First Semester

Humanities/Fine Arts Elective Credit: 3.
JOUR 4820 (5820) - Advanced Reporting Credit: 3.
PSY 3410 - Group Dynamics Credit: 3.
Emphasis Area course Credit: 3.
Elective Credit: 3.

Total: 15

Second Semester

JOUR 4360 (5360) - Magazine Production and
Design Credit: 3.
JOUR 4460 (5460) - Public Relations--Cases and
Practices Credit: 3.

JOUR 4710 - Literary Journalism Credit: 3. or
JOUR 4830 (5830) - Feature Writing Credit: 3.

JOUR 4930 (5930) - Advanced Copy-Editing Credit:
3.

Emphasis Area Course Credit: 3.

Total: 15

Note:

¹ This course not included in 120-hour curriculum.

² Emphasis Area Courses

Communication Options:

Agricultural Communication

The Agricultural Communication Option is designed to
prepare students for various careers in
Communication in Agriculture.

Courses in Agricultural Communication

Students take three of the following Agricultural courses
and one internship:

AGBE 2010 - World Food and Society Credit: 3.
AGBE 2100 - Economics of Agriculture Credit: 3.
AGED 4150 (5150) - Communications and Public
Relations in Agricultural and Extension
Education Credit: 3.
JOUR 4853 (5853) - Internship Credit: 3.
JOUR 4856 (5856) - Internship Credit: 6.
JOUR 4859 (5859) - Internship Credit: 9.

Environmental Communication

The Environmental Communication option is designed to
prepare students for various careers in appropriate
communication areas and in newspapers, magazines
and government to provide background and experience
in preparing students for those careers, the curriculum
places emphasis on practices and problems.

Courses in Environmental Communication

Students take four of the following courses. Only one
internship may count toward the four.

AGBE 2010 - World Food and Society Credit: 3.
AGBE 4120 (5120) - Natural Resource Economics
Credit: 3.

GEOL 1045 - Earth Environment, Resources and
Society Credit: 4.

GEOL 2000 - Earth Evolution and Life History
Credit: 3.

JOUR 4853 (5853) - Internship Credit: 3.

JOUR 4856 (5856) - Internship Credit: 6.

JOUR 4859 (5859) - Internship Credit: 9.

BIOL 3120 - General Ecology Credit: 3.

ESS 3710 - Chemistry and the Environment Credit:
3.

Digital Electronic Multi-Media

The Digital Electronic Multi-Media option is designed to
prepare students for various careers in the area of
electronic publishing. The curriculum is characterized by
an emphasis on analytical methods for business problem
solving, information technology applications and
electronic publishing, preparing students to serve as a
web master for a newspaper, magazine or public
relations department.

Courses in Digital Electronic Multi-Media

Students take four of the following courses:

COMM 3000 - Computer Mediated Communication
Credit: 3.

COMM 3120 - Visual Communication/Rhetoric
Credit: 3.

COMM 4440 - Semiotics Credit: 3.

JOUR 4500 - Advanced Multimedia Storytelling
Credit: 3.

JOUR 4853 (5853) - Internship Credit: 3.

Sports Multi-Media Communication

The Sports Multi-Media Communication Option is
designed to prepare students for various careers in the
area of sports. The curriculum is characterized by an
emphasis on sports management and coaching to
provide background and experience in sports
communication preparing students for a career as a
sports/columnist or in sports public relations. Hands-on
experience in radio and television may be gained via
internship.

Courses in Sports Multi-Media Communication

Students may take four of the following courses. Only
one internship may count toward the total of four.

EXPW 2170 - Introduction to Sport Management
Credit: 3.

EXPW 3180 - Introduction to Coaching Credit: 3.

EXPW 3300 - Sports Officiating Credit: 2.

EXPW 4171 - Exercise and Sport Psychology Credit:
3.

EXPW 4540 - Ethical Issues in Sport Credit: 3.

EXPW 4550 - Sport Governance Credit: 3.

JOUR 4853 (5853) - Internship Credit: 3.

JOUR 4856 (5856) - Internship Credit: 6.

JOUR 4859 (5859) - Internship Credit: 9.

Writing Fiction and Non-Fiction

The Writing Fiction and Non-Fiction option is designed to extend students' writing experiences beyond the freelance writing course and also prepares them for additional experiences in fiction and non-fiction writing, according to their aspirations.

Courses in Writing Fiction and Non-Fiction

Students take four of the following courses. Only one may include a special problems course.

ENGL 3400 - Introduction to Creative Writing Credit: 3.

ENGL 4430 (5430) - Creative Writing: Fiction Credit: 3.

ENGL 4440 (5440) - Creative Writing: Essay Credit: 3.

ENGL 4450 (5450) - Creative Writing: Poetry Credit: 3.

ENGL 4531 (5531) - Grammar and Language Credit: 3.

JOUR 4843 (5843) - Special Problems Credit: 3.

JOUR 4846 (5846) - Special Problems Credit: 6.

JOUR 4849 (5849) - Special Problems Credit: 9.

Courses in Literature

Students take four of the following courses:

ENGL 3500 - Mythology Credit: 3.

ENGL 4111 (5111) - Chaucer Credit: 3.

ENGL 4121 (5121) - Shakespeare Credit: 3.

THEA 4121 (5121) - Shakespeare Credit: 3.

ENGL 4130 (5130) - Milton Credit: 3.

ENGL 4140 (5140) - Topics in British Literature to 1667 Credit: 3.

ENGL 4210 (5210) - Eighteenth-Century British Literature Credit: 3.

ENGL 4221 (5221) - Romantic Literature Credit: 3.

ENGL 4231 (5231) - Victorian Literature Credit: 3.

ENGL 4240 (5240) - Topics in British Literature after 1667 Credit: 3.

ENGL 4250 (5250) - Post Modern Literatures in English Credit: 3.

ENGL 4310 (5310) - Early American Literature Credit: 3.

ENGL 4320 (5321) - Nineteenth Century American Literature Credit: 3.

ENGL 4330 (5330) - Modern American Literature Credit: 3.

ENGL 4340 (5340) - Topics in American Literature Credit: 3.

ENGL 4610 (5610) - Novel Credit: 3.

ENGL 4620 (5620) - Poetry: Form, Genre, Theory Credit: 3.

ENGL 4630 (5630) - Literary Criticism and Theory Credit: 3.

ENGL 4712 (5712) - African American Literature Credit: 3.

ENGL 4713 (5713) - Native American Literature Credit: 3.

ENGL 4720 (5720) - Continental Literature Credit: 3.

ENGL 4731 (5731) - Approaches to Women and Literature Credit: 3.

ENGL 4751 (5751) - Topics in Non-Western Literature Credit: 3.

ENGL 4810 (5810) - Introduction to Folklore Credit: 3.

ENGL 4820 - Upper Cumberland Folklore Credit: 3.

ENGL 4830 (5830) - Southern Literature Credit: 3.

ENGL 4840 (5840) - The Gothic Tale of Terror Credit: 3.

ENGL 4911 (5911) - The Literature of Science Credit: 3.

ENGL 4921 (5921) - Literature and Technology Credit: 3.

ENGL 4931 (5931) - Literature and the Environment Credit: 3.

Department of Counseling and Psychology

Psychology, B.S.

(Leading to the Bachelor of Science Degree)

The psychology program is administered by the Department of Counseling and Psychology, College of Education.

Curriculum

Freshman Year

First Semester

BIOL 1010 - Introduction to Biology Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3. or
MATH 1130 - College Algebra Credit: 3.

PSY 1030 - Introduction to Psychology Credit: 3.

UNIV 1020 - First-Year Connections Credit: 1. ¹

Total: 14

Second Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

BIOL 1020 - Diversity of Life Credit: 4.

Humanities/Fine Arts Elective Credit: 3.

PSY 2130 - Life Span Development Psychology Credit: 3. or

PSY 3300 - Introduction to Social Psychology Credit: 3.

Total: 16

Sophomore Year

First Semester

HIST 2010 - Early United States History Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Electives Credit: 5-6.

Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

Electives Credit: 9.

HIST 2020 - Modern United States History Credit: 3.

Total: 14-15

Junior Year

First Semester

PSY 3010 - Statistics and Experimental Design Credit: 3.

PSY 3020 - Information Literacy in Psychology Credit: 3.

Electives Credit: 6.

PSY 4150 (5150) - Psychology of Personality Credit: 3. or

PSY 4160 (5160) - Abnormal Psychology Credit: 3.

Total: 15

Second Semester

PSY 3110 - Experimental Psychology Credit: 4.

PSY 4050 (5050) - Learning and Cognition Credit: 3.

Electives Credit: 9.

Total: 16

Senior Year

First Semester

PSY 4930 - Senior Thesis Credit: 3.

PSY Upper Division Electives Credit: 6.

Electives Credit: 6.

Total: 15

Second Semester

PSY 4130 (5130) - Brain and Behavior Credit: 3.

PSY 4931 - Senior Thesis Credit: 3.

PSY Upper Division Electives Credit: 6.

Elective Credit: 3.

Total: 15

Note:

¹ UNIV 1020 or equivalent is required for first time Freshman. Students not required to take UNIV 1020 may take a general elective (it does not have to be a one-hour course). See your academic advisor.

Department of Curriculum and Instruction
Department of Curriculum and Instruction

Early Childhood Education, Early Childhood/Special Education, PreK-3, B.S.

(Leading to the Bachelor of Science Degree and Tennessee teaching license if Teacher Education requirements are met.)

(This program is located in the Department of Curriculum and Instruction.)

Curriculum

Freshman Year

First Semester

ART 1035 - Introduction to Art Credit: 3. or

MUS 1030 - Music Appreciation Credit: 3.

ENGL 1010 - English Composition I Credit: 3.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

MATH 1410 - Number Concepts for Teachers Credit: 3.

Total: 12

Second Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

HIST 2010 - Early United States History Credit: 3.

MATH 1420 - Geometry Concepts for Teachers Credit: 3.

Select two:

BIOL 1080 - Concepts of Biology Credit: 3. or

CHEM 1310 - Concepts of Chemistry Credit: 3. or

GEOL 1070 - Concepts of Geology Credit: 3. or

PHYS 1310 - Concepts of Physics Credit: 3.

Total: 18

Sophomore Year

First Semester

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

GEOG 1012 - Cultural Geography Credit: 3.

HEC 2200 - Development of Young Children: Conception to Age 6 Credit: 3.

SOC 1010 - Introduction to Sociology Credit: 3. or

ANTH 1100 - Introduction to Anthropology Credit: 3.

Select two:

BIOL 1080 - Concepts of Biology Credit: 3. or

CHEM 1310 - Concepts of Chemistry Credit: 3. or

GEOL 1070 - Concepts of Geology Credit: 3. or

PHYS 1310 - Concepts of Physics Credit: 3.

Total: 18

Second Semester

CFS 2400 - Children with Special Needs Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3.

HEC 3520 - Parent Education and Child Guidance Credit: 2.

HIST 2020 - Modern United States History Credit: 3.

MUS 1074 - Music to Meet Exceptional Education Needs Credit: 1.

Total: 12

Junior Year

First Semester

CFS 3600 - Family, Community & Professional Partnerships Credit: 2.

ECSP 3001 - Curriculum for Infants, Toddlers & Preschoolers Credit: 3.

ECSP 3211 - Practicum: Procedures for Infants, Toddlers & Preschoolers Credit: 1.

ECSP 4100 - Developmentally Appropriate Practices: K-4 Credit: 3.

FOED 3810 - Field Experiences in Education Credit: 1-2. (Two credit hours required)

READ 3311 - Literacy I Credit: 7.

Total: 18

Second Semester

ECED 3301 - Math, Science, Social Studies for the Young Child Credit: 7.

ECED 3310 - Practicum: Concepts for Young Children Credit: 1.

ECSP 4000 - Developmentally Appropriate Practices: Birth-Preschool Credit: 3.

ESLP 4100 (5100) - ESL Methodology and Materials for PreK-12 Credit: 3.

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

Total: 17

Senior Year

First Semester

ECSP 4300 (5300) - Assessment of Young Children Credit: 3.

ECSP 4871 - Residency I Credit: 5.

ECSP 4872 - Professional Seminar I Credit: 5.

Total: 13

Second Semester

ECSP 4881 - Residency II Credit: 10.

ECSP 4882 - Professional Seminar II Credit: 2.

Total: 12

**Early Childhood Practitioner, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

ART 1035 - Introduction to Art Credit: 3. or

MUS 1030 - Music Appreciation Credit: 3.

ENGL 1010 - English Composition I Credit: 3.

BIOL 1080 - Concepts of Biology Credit: 3.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

MATH 1410 - Number Concepts for Teachers Credit: 3.

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.

GEOG 1070 - Concepts of Geology Credit: 3.

HIST 2010 - Early United States History Credit: 3.

MATH 1420 - Geometry Concepts for Teachers Credit: 3.

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

Total: 15

Sophomore Year

First Semester

CHEM 1310 - Concepts of Chemistry Credit: 3.

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

GEOG 1012 - Cultural Geography Credit: 3.

HEC 2200 - Development of Young Children: Conception to Age 6 Credit: 3.

SOC 1010 - Introduction to Sociology Credit: 3. or

ANTH 1100 - Introduction to Anthropology Credit: 3.

Total: 15

Second Semester

CFS 2400 - Children with Special Needs Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3.

HEC 3520 - Parent Education and Child Guidance Credit: 2.

HIST 2020 - Modern United States History Credit: 3.

MUS 1074 - Music to Meet Exceptional Education Needs Credit: 1.

PHYS 1310 - Concepts of Physics Credit: 3.

Total: 15

Junior Year

First Semester

ECSP 3001 - Curriculum for Infants, Toddlers & Preschoolers Credit: 3.

ECSP 3211 - Practicum: Procedures for Infants, Toddlers & Preschoolers Credit: 1.
ECSP 4300 (5300) - Assessment of Young Children Credit: 3.
FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.
FOED 3810 - Field Experiences in Education Credit: 1-2. (Two credit hours required)
READ 3311 - Literacy I Credit: 7.

Total: 19

Second Semester

CFS 3600 - Family, Community & Professional Partnerships Credit: 2.
ECED 4230 (5230) - Early Intervention I Credit: 3.
ECED 4290 (5290) - Community Connections Credit: 3.
ECSP 4000 - Developmentally Appropriate Practices: Birth-Preschool Credit: 3.
ESLP 4100 (5100) - ESL Methodology and Materials for PreK-12 Credit: 3.
HEC 2510 - Foundations of Play Credit: 3.

Total: 17

Senior Year

ECED 4221 - Early Intervention Field Experience Credit: 1.
ECED 4240 (5240) - Early Intervention II Credit: 3.
ECED 4270 - Early Childhood Internship I Credit: 5.
ECED 4260 - Early Childhood Program Leadership, Administration and Assessment Credit: 8.
ECED 4280 - Early Childhood Internship II Credit: 7.

Total: 24

Notes:

¹Overall, the program must include at least 36 hours of upper division.

²HEC majors and ECED non-licensure majors may take advisor approved upper division courses without admission to Teacher Education.

Elementary Education, B.S.

(Leading to the Bachelor of Science Degree and Tennessee teaching license if Teacher Education requirements are met.)

Curriculum

Freshman Year

First Semester

BIOL 1080 - Concepts of Biology Credit: 3.
ENGL 1010 - English Composition I Credit: 3.
FOED 2011 - Introduction to Teaching and Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

HIST 2010 - Early United States History Credit: 3.

MATH 1410 - Number Concepts for Teachers Credit: 3.

Total: 15

Second Semester

ENGL 1020 - English Composition II Credit: 3.
CHEM 1310 - Concepts of Chemistry Credit: 3.
GEOG 1012 - Cultural Geography Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
MATH 1420 - Geometry Concepts for Teachers Credit: 3.

Total: 15

Sophomore Year

First Semester

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

HEC 3500 - Development: Middle Childhood/Adolescence Credit: 3.

MATH Credit: 3.

PHYS 1310 - Concepts of Physics Credit: 3.

Total: 15

Second Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

EDPY 2210 - Educational Psychology Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3.

GEOL 1070 - Concepts of Geology Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Junior Year

First Semester

CUED 4700 - Educational Data and Assessment Credit: 2.

ECSP 4100 - Developmentally Appropriate Practices: K-4 Credit: 3.

ESLP 4100 (5100) - ESL Methodology and Materials for PreK-12 Credit: 3.

FOED 3810 - Field Experiences in Education Credit: 1-2. (Two credit hours required)

READ 3311 - Literacy I Credit: 7.

Total: 17

Second Semester

ELED 3140 - Teaching of Social Studies Credit: 2.

ELED 3152 - Teaching of Mathematics Credit: 3.

ELED 4142 - Teaching of Science Credit: 3.

FOED 3800 - Field Experiences in Education Credit: 1-3. (Two credit hours required)

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Elective Credit: 2.

Total: 18

Senior Year

First Semester

CUED 4800 - Student Engagement Credit: 3.

ELED 4871 - Residency I Credit: 5.

ELED 4872 - Professional Seminar I Credit: 5.

Total: 13

Second Semester

ELED 4881 - Residency II Credit: 10.

ELED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Multidisciplinary Studies, General Concentration,
B.S.
(Leading to the Bachelor of Science)**

Curriculum

Freshman Year

ENGL 1010 - English Composition I Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

Social/Behavioral Sciences Electives Credit: 6.²

PHED Credit: 1.

Any General Education approved Science sequence
(8 hours) or any combination of General
Education approved Science to total 12 hours

FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or

FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

Select Two:

MATH 1010 - Math for General Studies Credit: 3. or

MATH 1130 - College Algebra Credit: 3. or

MATH 1410 - Number Concepts for Teachers Credit:
3. or

MATH 1530 - Introductory Statistics Credit: 3. or

MATH 1630 - Finite Mathematics Credit: 3. or

MATH 1710 - Pre-calculus Algebra Credit: 3. or

MATH 1830 - Applied Calculus Credit: 3.

Or

MATH 1410 - Number Concepts for Teachers Credit
3. and

MATH 1420 - Geometry Concepts for Teachers
Credit: 3.

Total: 30

Sophomore Year

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Humanities/Fine Arts Electives Credit: 6.³

HIST 2010 - Early United States History Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

EXPW 2130 - Concepts of Comprehensive Health
Credit: 3. or

EXPW 2430 - First Aid, Safety and CPR Credit: 2.

SPED 2010 - Introduction to Special Education
Credit: 3. or

any 3000/4000 level SPED course

Choose six-eight semester hours from the following:

BIOL 1080 - Concepts of Biology Credit: 3.

CHEM 1310 - Concepts of Chemistry Credit: 3.

GEOL 1070 - Concepts of Geology Credit: 3.

PHYS 1310 - Concepts of Physics Credit: 3.

Science Sequence ¹

Total: 30-32

Junior Year

HEC 2200 - Development of Young Children:
Conception to Age 6 Credit: 3. or

HEC 3500 - Development: Middle

Childhood/Adolescence Credit: 3. or

HEC 3520 - Parent Education and Child Guidance
Credit: 2.

FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.

Guided Electives Credit: 8.

Upper Division General Electives Credit: 9-10.

EXPW 2130 - Concepts of Comprehensive Health
Credit: 3. or

EXPW 2430 - First Aid, Safety and CPR Credit: 2.

Any two different areas (five-six semester hours) from:

MUS 3530 - Music Applications Credit: 3.

THEA 4500 (5500) - Creative Dramatics Credit: 3.

any 3000/4000 level HIST

any 3000/4000 level PHIL

any 3000/4000 level PSY

any 3000/4000 level SOC

Total: 32

Senior Year

EDPY 2210 - Educational Psychology Credit: 3. or

EDPY 3300 - Evaluation and Guidance Credit: 3. or

PSY 4100 (5100) - Child Psychology Credit: 3.

CJ 3650 - Youth and Society Credit: 3. or

CJ 4250 (5250) - Drugs and Behavioral
Pharmacology Credit: 3. or

SOC 4510 (5510) - Social Deviance Credit: 3. or

SOC 4500 (5500) - Sociology of Alcohol Abuse and
Alcoholism Credit: 3. or

PSY 4130 (5130) - Brain and Behavior Credit: 3. or

PSY 4400 (5400) - Psychopharmacology Credit: 3.
or

READ 4570 (5570) - Young Adult Literature Credit:
3. or
LSCI 4570 (5570) - Young Adult Literature Credit: 3.
or
PSY 4050 (5050) - Learning and Cognition Credit: 3.

Guided Electives Credit: 7.
Electives (36 hours of total program must be taken
at the 3000/4000 level) The program of study
will total 120 hours Credit 10-19.

Total: 24-35

Note:

¹ Complete a sequence (eight semester hours) or total of
12 semester hours selected from BIOL, CHEM, PHYS
or GEOL.

² Select two courses from: ANTH 1100(SOC 1100);
ECON 2010, ECON 2020; GEOG 1012; POLS 1030;
PSY 1030 or SOC 1010.

³ Select two courses from: ART 1035; HIST 2210, HIST
2220, HIST 2310, HIST 2320; MUS 1030; PHIL 1030;
THEA 1030; ENGL 2130, ENGL 2235 or ENGL 2330.

Note: A minimum of 36 Upper Division hours are
required for graduation.

**Multidisciplinary Studies, Middle School English, 6-8
Concentration, B.S.
(Leading to the Bachelor of Science Degree and
Tennessee teaching license if Teacher Education
requirements are met.)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or
FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

HIST 2010 - Early United States History Credit: 3.
MATH Credit: 3.
Natural Sciences Credit: 4.

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

HIST 2020 - Modern United States History Credit: 3.
Natural Sciences Credit: 4.
Humanities/Fine Arts Elective Credit: 3.

Total: 16

Sophomore Year

First Semester

ENGL 2330 - Topics in World Literature Credit: 3.
EDPY 2210 - Educational Psychology Credit: 3.
ENGL 3810 - British Literature I Credit: 3.
Foreign Language Credit: 3.
Humanities/Fine Arts Elective Credit: 3.

Total: 15

Second Semester

ENGL 3910 - American Literature I Credit: 3.
FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.
HEC 3500 - Development: Middle
Childhood/Adolescence Credit: 3.
Social/Behavioral Sciences Elective Credit: 6.
Elective Credit: 1.

Total: 16

Junior Year

First Semester

ENGL 4121 (5121) - Shakespeare Credit: 3.
ENGL 3820 - British Literature II Credit: 3.
ENGL 3920 - American Literature II Credit: 3.
ESLP 4100 (5100) - ESL Methodology and Materials
for PreK-12 Credit: 3.
READ 4570 (5570) - Young Adult Literature Credit:
3.
SPED 3000 - Teaching Persons with Disabilities in
the Regular Classroom Credit: 3.

Total: 18

Second Semester

FOED 3820 - Field Experiences in Education Credit:
1-2. (Two credit hours required)
READ 3312 - Literacy II - Middle School Reading
Program Credit: 7.
READ 3350 - Teaching Reading in the Content
Areas Credit: 3.
SEED 4120 (5120) - Materials and Methods of
Teaching English Credit: 3.

Total: 15

Senior Year

First Semester

SEED 4871 - Residency I Credit: 5.
SEED 4872 - Professional Seminar I Credit: 5.
CUED 4700 - Educational Data and Assessment
Credit: 2.

Total: 12

Second Semester

SEED 4881 - Residency II Credit: 10.
SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Multidisciplinary Studies, Middle School Math, 6-8
Concentration, B.S.**

**(Leading to the Bachelor of Science Degree and
Tennessee teaching license if Teacher Education
requirements are met.)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or
FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

HIST 2010 - Early United States History Credit: 3.
MATH 1410 - Number Concepts for Teachers Credit:
3.
Natural Sciences Credit: 4.

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

MATH 1420 - Geometry Concepts for Teachers
Credit: 3.
Natural Sciences Credit: 4.
HIST 2020 - Modern United States History Credit: 3.

Total: 16

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.
HEC 3500 - Development: Middle
Childhood/Adolescence Credit: 3.
MATH 1130 - College Algebra Credit: 3.
Social/Behavioral Sciences Elective Credit: 6.

Total: 18

Second Semester

EDPY 2210 - Educational Psychology Credit: 3.
Humanities/Fine Arts Elective Credit: 6.
MATH 1530 - Introductory Statistics Credit: 3.
MATH 1720 - Pre-calculus Trigonometry Credit: 3.

Total: 15

Junior Year

First Semester

ESLP 4100 (5100) - ESL Methodology and Materials
for PreK-12 Credit: 3.
MATH 1910 - Calculus I Credit: 4.
SEED 4322 (5322) - Teaching Algebra in
Middle/High School Credit: 3.
SEED 4422 (5422) - Teaching Secondary
Mathematics Using Technology Credit: 3.
SPED 3000 - Teaching Persons with Disabilities in
the Regular Classroom Credit: 3.

Total: 16

Second Semester

FOED 3820 - Field Experiences in Education Credit:
1-2. (Two credits required)
READ 3312 - Literacy II - Middle School Reading
Program Credit: 7.
READ 3350 - Teaching Reading in the Content
Areas Credit: 3.
SEED 4122 (5122) - Materials and Methods of
Teaching Mathematics Credit: 3.

Total: 15

Senior Year

First Semester

CUED 4700 - Educational Data and Assessment
Credit: 2.
SEED 4871 - Residency I Credit: 5.
SEED 4872 - Professional Seminar I Credit: 5.

Total: 12

Second Semester

SEED 4881 - Residency II Credit: 10.
SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Multidisciplinary Studies, Middle School Science, 6-8
Concentration, B.S.**

**(Leading to the Bachelor of Science Degree and
Tennessee teaching license if Teacher Education
requirements are met.)**

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.
ENGL 1010 - English Composition I Credit: 3.
FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or
FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

Humanities/Fine Arts Elective Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

Total: 16

Second Semester

CHEM 1110 - General Chemistry I Credit: 4.
ENGL 1020 - English Composition II Credit: 3.

GEOL 1045 - Earth Environment, Resources and Society Credit: 4.

MATH 1130 - College Algebra Credit: 3. or
MATH 1710 - Pre-calculus Algebra Credit: 3.

Social/Behavioral Sciences Elective credit: 3.

Total: 17

Sophomore Year

First Semester

ASTR 1010 - Introduction to Modern Astronomy
Credit: 4. or

ASTR 1020 - Introduction to Modern Astronomy
Credit: 4.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 1310 - Science and World Cultures Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

Total: 16

Second Semester

BIOL 3120 - General Ecology Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

EDPY 2210 - Educational Psychology Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

PHYS 2010 - Algebra-based Physics I Credit: 4.

Total: 16

Junior Year

First Semester

CUED 4400 (5400) - Teaching Methods for Physical
Sciences Credit: 3.

CUED 4700 - Educational Data and Assessment
Credit: 2.

ESLP 4100 (5100) - ESL Methodology and Materials
for PreK-12 Credit: 3.

FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.

HEC 3500 - Development: Middle
Childhood/Adolescence Credit: 3.

Elective Credit: 1.

Total: 15

Second Semester

FOED 3820 - Field Experiences in Education Credit:
1-2. (Two credit hours required)

READ 3312 - Literacy II - Middle School Reading
Program Credit: 7.

READ 3350 - Teaching Reading in the Content
Areas Credit: 3.

SEED 4123 (5123) - Materials and Methods of
Teaching the Sciences Credit: 3.

Total: 15

Senior Year

First Semester

SEED 4871 - Residency I Credit: 5.

SEED 4872 - Professional Seminar I Credit: 5.

SPED 3000 - Teaching Persons with Disabilities in
the Regular Classroom Credit: 3.

Total: 13

Second Semester

SEED 4881 - Residency II Credit: 10.

SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Multidisciplinary Studies, Middle School Social
Studies, 6-8 Concentration, B.S.**

**(Leading to the Bachelor of Science Degree and
Tennessee teaching license if Teacher Education
requirements are met.)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or

FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

HIST 2010 - Early United States History Credit: 3.

MATH Credit: 3.

Natural Sciences Credit: 4.

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

GEOG 1012 - Cultural Geography Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Natural Sciences Credit: 4.

POLS 1030 - American Government Credit: 3.

Total: 16

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2210 - Early Western Civilization Credit: 3. or

HIST 2220 - Modern Western Civilization Credit: 3.

HIST 2320 - Modern World History Credit: 3.

Humanities/Fine Arts Elective Credit: 6.

Total: 15

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

EDPY 2210 - Educational Psychology Credit: 3.
HIST 2310 - Early World History Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.
Elective from ECON, POLS, GEOG or HIST Credit:
3.

Elective Credit: 1.

Total: 16

Junior Year

First Semester

ESLP 4100 (5100) - ESL Methodology and Materials
for PreK-12 Credit: 3.
FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.
HEC 3500 - Development: Middle
Childhood/Adolescence Credit: 3.
HIST Upper Division Elective Credit: 6.
SPED 3000 - Teaching Persons with Disabilities in
the Regular Classroom Credit: 3.

Total: 18

Second Semester

FOED 3820 - Field Experiences in Education Credit:
1-2. (Two credit hours required)
READ 3312 - Literacy II - Middle School Reading
Program Credit: 7.
READ 3350 - Teaching Reading in the Content
Areas Credit: 3.
SEED 4124 (5124) - Materials and Methods of
Teaching Social Studies Credit: 3.

Total: 15

Senior Year

First Semester

CUED 4700 - Educational Data and Assessment
Credit: 2.
SEED 4871 - Residency I Credit: 5.
SEED 4872 - Professional Seminar I Credit: 5.

Total: 12

Second Semester

SEED 4881 - Residency II Credit: 10.
SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Multidisciplinary Studies, Teaching English as a
Second Language Concentration, B.S.
(Leading to the Bachelor of Science Degree and
Tennessee teaching license if Teacher Education
requirements are met.)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

HIST 2010 - Early United States History Credit: 3.
MATH 1410 - Number Concepts for Teachers Credit:
3.

Natural Sciences Credit: 4.
FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or

FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
MATH 1420 - Geometry Concepts for Teachers
Credit: 3.

Natural Sciences Credit: 4.
Social/Behavioral Sciences Elective Credit: 3.

Total: 16

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

MATH Elective Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.
Elective Credit: 1.

Select one:

FREN 2010 - Intermediate French I Credit: 3.
Or
GERM 2010 - Intermediate German I Credit: 3.
Or
SPAN 2010 - Intermediate Spanish I Credit: 3.

Total: 13

Second Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

EDPY 2210 - Educational Psychology Credit: 3.
Humanities/Fine Arts Elective Credit: 6.

Select one:

FREN 2020 - Intermediate French 2 Credit: 3.
Or
GERM 2020 - Intermediate German 2 Credit: 3.
Or
SPAN 2020 - Intermediate Spanish 2 Credit: 3.

Total: 15

Junior Year

First Semester

CFS 3600 - Family, Community & Professional
Partnerships Credit: 2.

CUED 4700 - Educational Data and Assessment
Credit: 2.

SPED 3050 - Universal Design for Special
Education Credit: 5.

ESLP 4100 (5100) - ESL Methodology and Materials
for PreK-12 Credit: 3. or

TEAE 4020 Credit: 3.

ENGL 4511 (5511) - Introduction to Descriptive
Linguistics Credit: 3. or

LING 4511 (5511) - Introduction to Descriptive
Linguistics Credit: 3. or

TEAE 4500 Credit: 3.

Select one:

FREN 3510 - France: The Country & the People
Credit: 3.

GERM 3520 - Germany: The Country & the People
Credit: 3.

SPAN 3510 - Spain: The Country and the People
Credit: 3.

SPAN 3550 - Latin America: The Countries and the
Peoples Credit: 3.

Total: 18

Second Semester

ECSP 4100 - Developmentally Appropriate
Practices: K-4 Credit: 3.

FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.

FOED 3810 - Field Experiences in Education Credit:
1-2. (Two credit hours required)

FOED 3840 - Field Experiences in ESL Credit: 1-3.
(One credit hour required)

READ 3313 - Literacy for Special Populations
Credit: 5.

ESLP 4200 (5200) - ESL Assessment: Reading and
Writing Credit: 3. or

TEAE 4437 Credit: 3.

Total: 17

Senior Year

First Semester

ELED 4871 - Residency I Credit: 5.

ELED 4872 - Professional Seminar I Credit: 5.

SPED 3000 - Teaching Persons with Disabilities in
the Regular Classroom Credit: 3.

Total: 13

Second Semester

ELED 4881 - Residency II Credit: 10.

ELED 4882 - Professional Seminar II Credit: 2.

Total: 12

Note:

¹ Those students who do not place at the 2010 level as
determined by a proficiency test administered by the
Department of Foreign Languages or those students
who have not taken two years of foreign language in

high school will take 1010, 1020 and 2010 for nine
hours in the same language.

Special Education Practitioner, B.S. (Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

BIOL 1080 - Concepts of Biology Credit: 3.

CHEM 1310 - Concepts of Chemistry Credit: 3.

ENGL 1010 - English Composition I Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or

FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

GEOG 1012 - Cultural Geography Credit: 3.

HIST 2010 - Early United States History Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

MATH 1410 - Number Concepts for Teachers Credit:
3.

MATH 1420 - Geometry Concepts for Teachers
Credit: 3.

Total: 30

Sophomore Year

EDPY 2210 - Educational Psychology Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3.

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

GEOG 1070 - Concepts of Geology Credit: 3.

HEC 2200 - Development of Young Children:

Conception to Age 6 Credit: 3. or

HEC 3500 - Development: Middle
Childhood/Adolescence Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

PHYS 1310 - Concepts of Physics Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

SPED 2010 - Introduction to Special Education
Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

Total: 30

Junior Year

EXPW 2150 - Human Sexuality Credit: 3.

EXPW 2430 - First Aid, Safety and CPR Credit: 2.
EXPW 4520 - Adapted Physical Activity and Sport
Credit: 3.
SPED 3020 - Characteristics and Needs of Persons
with Comprehensive Disabilities Credit: 3.
SPED 3031 - Physical Management and Support
Services for Orthopedic, Motor and Health
Impaired Credit: 3.
SPED 3110 - Behavior Concepts Credit: 3.
SPED 3120 - Interventions and Supports Credit: 3.
SPED 4200 (5200) - Teaching Students with Autism
Spectrum Disorders Credit: 3.
Electives Credit: 9
MATH Credit: 3.

Total: 35

Senior Year

CFS 3600 - Family, Community & Professional
Partnerships Credit: 2.
SPED 4110 - Behavioral Assessment Credit: 3.
SPED 4120 - Topics in Behavior Credit: 3.
SPED 4170 - Community Residency/Practicum I
Credit: 7.
SPED 4180 - Community Residency/Practicum II
Credit: 9.
Elective Credit: 1.

Total: 25

**Special Education, Comprehensive Program
Concentration, B.S.
(Leading to the Bachelor of Science Degree and
Tennessee teaching license if Teacher Education
requirements are met.)**

Curriculum

Freshman Year

First Semester

BIOL 1080 - Concepts of Biology Credit: 3.
ENGL 1010 - English Composition I Credit: 3.
HIST 2010 - Early United States History Credit: 3.
MATH 1410 - Number Concepts for Teachers Credit:
3.
FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or

FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

Total: 15

Second Semester

CHEM 1310 - Concepts of Chemistry Credit: 3.
ENGL 1020 - English Composition II Credit: 3.
GEOG 1012 - Cultural Geography Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
MATH 1420 - Geometry Concepts for Teachers
Credit: 3.

Total: 15

Sophomore Year

First Semester

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

GEOL 1070 - Concepts of Geology Credit: 3.

HEC 3500 - Development: Middle

Childhood/Adolescence Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

MATH Credit: 3.

Total: 15

Second Semester

EDPY 2210 - Educational Psychology Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3.

Humanities/Fine Arts Elective Credit: 3.

PHYS 1310 - Concepts of Physics Credit: 3.

SPED 2010 - Introduction to Special Education
Credit: 3.

Total: 15

Junior Year

First Semester

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

EXPW 4520 - Adapted Physical Activity and Sport
Credit: 3.

MUS 1074 - Music to Meet Exceptional Education
Needs Credit: 1.

SPED 3050 - Universal Design for Special
Education Credit: 5.

SPED 4030 - Applied Behavior Analysis for
Teachers Credit: 3.

SPED 4200 (5200) - Teaching Students with Autism
Spectrum Disorders Credit: 3.

Total: 18

Second Semester

CUED 4700 - Educational Data and Assessment
Credit: 2.

FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.

FOED 3810 - Field Experiences in Education Credit:
1-2. (Two credit hours required)

READ 3313 - Literacy for Special Populations
Credit: 5.

SPED 3020 - Characteristics and Needs of Persons
with Comprehensive Disabilities Credit: 3.

SPED 3031 - Physical Management and Support
Services for Orthopedic, Motor and Health
Impaired Credit: 3.

Total: 18

Senior Year

First Semester

SPED 4871 - Residency I Credit: 5.

SPED 4872 - Professional Seminar I Credit: 5.

CFS 3600 - Family, Community & Professional Partnerships Credit: 2.

Total: 12

Second Semester

SPED 4881 - Residency II Credit: 10.

SPED 4882 - Professional Seminar II Credit: 2.

Total: 12

Special Education, SE Interventionist Biology, 6-12 Concentration, B.S.

(Leading to the Bachelor of Science Degree and Tennessee teaching license if Teacher Education requirements are met.)

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

CHEM 1310 - Concepts of Chemistry Credit: 3.

GEOL 1070 - Concepts of Geology Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

MATH 1710 - Pre-calculus Algebra Credit: 3.

Total: 15

Sophomore Year

First Semester

BIOL 1123 - General Biology II Credit: 4.

ENGL 2130 - Topics in American Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

EDPY 2210 - Educational Psychology Credit: 3.

Total: 16

Second Semester

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

PHYS 1310 - Concepts of Physics Credit: 3.

SPED 2010 - Introduction to Special Education Credit: 3.

Total: 15

Junior Year

First Semester

BIOL 3130 - General Ecology Credit: 4.

READ 3350 - Teaching Reading in the Content Areas Credit: 3.

SPED 3050 - Universal Design for Special Education Credit: 5.

SPED 4030 - Applied Behavior Analysis for Teachers Credit: 3.

SPED 4200 (5200) - Teaching Students with Autism Spectrum Disorders Credit: 3.

Total: 18

Second Semester

BIOL 2350 - Introductory Anatomy and Physiology Credit: 4.

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)

SPED 3030 - The Education of Persons with Learning Disabilities Credit: 3.

SEED 4123 (5123) - Materials and Methods of Teaching the Sciences Credit: 3.

Total: 15

Senior Year

First Semester

SPED 4100 - Collaboration and Inclusive Practice Credit: 3.

SPED 4871 - Residency I Credit: 5.

SPED 4872 - Professional Seminar I Credit: 5.

Total: 13

Second Semester

SPED 4881 - Residency II Credit: 10.

SPED 4882 - Professional Seminar II Credit: 2.

Total: 12

Special Education, SE Interventionist English, 6-12 Concentration, B.S.

(Leading to the Bachelor of Science Degree and Tennessee teaching license if Teacher Education requirements are met.)

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH Credit: 3.

Science Sequence Credit: 4.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

Total: 13

Second Semester

ENGL 1020 - English Composition II Credit: 3.
Humanities/Fine Arts Elective Credit: 6.
Science Sequence Credit: 4.

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

MUS 1074 - Music to Meet Exceptional Education Needs Credit: 1.

Total: 17

Sophomore Year

First Semester

ENGL 2330 - Topics in World Literature Credit: 3.
EDPY 2210 - Educational Psychology Credit: 3.
HIST 2010 - Early United States History Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.

FREN 2010 - Intermediate French I Credit: 3. or
GERM 2010 - Intermediate German I Credit: 3. or
SPAN 2010 - Intermediate Spanish I Credit: 3.

Total: 15

Second Semester

ENGL 2130 - Topics in American Literature Credit: 3.
ENGL 2235 - Topics in British Literature Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.
SPED 2010 - Introduction to Special Education Credit: 3.

Total: 15

Junior Year

First Semester

READ 3350 - Teaching Reading in the Content Areas Credit: 3.
SPED 3050 - Universal Design for Special Education Credit: 5.
SPED 4030 - Applied Behavior Analysis for Teachers Credit: 3.
Elective Credit: 1.

ENGL 3250 - Professional Communication I Credit: 3. or

Any Upper Division English writing course, Linguistics, Grammar, or History of the English Language Credit: 3.

ESLP 4100 (5100) - ESL Methodology and Materials for PreK-12 Credit: 3. or

TEAE 4020 Credit: 3.

Total: 18

Second Semester

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)

READ 4411 (5411) - The Reading-Writing Connection: Secondary Credit: 3.

READ 4570 (5570) - Young Adult Literature Credit: 3.

SEED 4120 (5120) - Materials and Methods of Teaching English Credit: 3.

SPED 3030 - The Education of Persons with Learning Disabilities Credit: 3.

Total: 17

Senior Year

First Semester

SPED 4100 - Collaboration and Inclusive Practice Credit: 3.

SPED 4871 - Residency I Credit: 5.

SPED 4872 - Professional Seminar I Credit: 5.

Total: 13

Second Semester

SPED 4881 - Residency II Credit: 10.

SPED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Special Education, SE Interventionist History, 6-12 Concentration, B.S.
(Leading to the Bachelor of Science Degree and Tennessee teaching license if Teacher Education requirements are met.)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
HIST 2010 - Early United States History Credit: 3.
POLS 1030 - American Government Credit: 3.
Science Sequence Credit: 4.
FOED 2011 - Introduction to Teaching and Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
MATH Credit: 3.
Elective Credit: 1.
Science Sequence Credit: 4.

Total: 14

Sophomore Year

First Semester

ANTH 1100 - Introduction to Anthropology Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2210 - Early Western Civilization Credit: 3.
PSY 1030 - Introduction to Psychology Credit: 3.

Total: 15

Second Semester

ENGL 2130 - Topics in American Literature Credit:
3.

HIST 2220 - Modern Western Civilization Credit: 3.

HIST 2310 - Early World History Credit: 3. or
HIST 2320 - Modern World History Credit: 3.

EDPY 2210 - Educational Psychology Credit: 3.
SPED 2010 - Introduction to Special Education
Credit: 3.

Total: 15

Junior Year

First Semester

HIST 3100 - Tennessee Topics Credit: 3.

HIST 3410 - Introduction to Historical Methods
Credit: 3.

READ 3350 - Teaching Reading in the Content
Areas Credit: 3.

SPED 3050 - Universal Design for Special
Education Credit: 5.

SPED 4030 - Applied Behavior Analysis for
Teachers Credit: 3.

Total: 17

Second Semester

FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.

FOED 3820 - Field Experiences in Education Credit:
1-2. (Two credit hours required)

SEED 4124 (5124) - Materials and Methods of
Teaching Social Studies Credit: 3.

SPED 3030 - The Education of Persons with
Learning Disabilities Credit: 3.

Electives from POLS, ECON, GEOG Credit: 4.

HIST 4710 - History of Africa Credit: 3. or
HIST 4730 (5730) - The Modern Middle East Credit:
3. or

HIST 4740 (5740) - History of Japan Credit: 3. or

HIST 4750 (5750) - History of China Credit: 3. or

HIST 4760 (5760) - Vietnam: Its Wars and Their
Aftermath Credit: 3. or

HIST 4790-4799 (5790) - Latin American Studies
Credit: 3.

Total: 18

Senior Year

First Semester

SPED 4100 - Collaboration and Inclusive Practice
Credit: 3.

SPED 4871 - Residency I Credit: 5.

SPED 4872 - Professional Seminar I Credit: 5.

Total: 13

Second Semester

SPED 4881 - Residency II Credit: 10.

SPED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Special Education, SE Interventionist K-8
Concentration, B.S.**

**(Leading to the Bachelor of Science Degree and
Tennessee teaching license if Teacher Education
requirements are met.)**

Curriculum

Freshman Year

First Semester

BIOL 1080 - Concepts of Biology Credit: 3.

ENGL 1010 - English Composition I Credit: 3.

HIST 2010 - Early United States History Credit: 3.

FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

MATH 1410 - Number Concepts for Teachers Credit:
3.

FOED 1820 - Introductory Field Experience Credit:
1. or

FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

Total: 15

Second Semester

CHEM 1310 - Concepts of Chemistry Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

GEOG 1012 - Cultural Geography Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

MATH 1420 - Geometry Concepts for Teachers
Credit: 3.

Total: 15

Sophomore Year

First Semester

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

GEOG 1070 - Concepts of Geology Credit: 3.

HEC 3500 - Development: Middle
Childhood/Adolescence Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

MATH 1130 - College Algebra Credit: 3. or

MATH 1530 - Introductory Statistics Credit: 3.

Total: 15

Second Semester

EDPY 2210 - Educational Psychology Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

PHYS 1310 - Concepts of Physics Credit: 3.

SPED 2010 - Introduction to Special Education Credit: 3.

Total: 15

Junior Year

First Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

SPED 3050 - Universal Design for Special Education Credit: 5.

SPED 4030 - Applied Behavior Analysis for Teachers Credit: 3.

SPED 4200 (5200) - Teaching Students with Autism Spectrum Disorders Credit: 3.

Total: 17

Second Semester

CUED 4700 - Educational Data and Assessment Credit: 2.

FOED 3810 - Field Experiences in Education Credit: 1-2. (Two credit hours required)

MUS 1074 - Music to Meet Exceptional Education Needs Credit: 1.

READ 3313 - Literacy for Special Populations Credit: 5.

SPED 3030 - The Education of Persons with Learning Disabilities Credit: 3.

SPED 3031 - Physical Management and Support Services for Orthopedic, Motor and Health Impaired Credit: 3.

Total: 16

Senior Year

First Semester

CFS 3600 - Family, Community & Professional Partnerships Credit: 2.

SPED 4100 - Collaboration and Inclusive Practice Credit: 3.

SPED 4871 - Residency I Credit: 5.

SPED 4872 - Professional Seminar I Credit: 5.

Total: 15

Second Semester

SPED 4881 - Residency II Credit: 10.

SPED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Special Education, SE Interventionist Math, 6-12 Concentration, B.S.
(Leading to the Bachelor of Science Degree and Tennessee teaching license if Teacher Education requirements are met.)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH 1910 - Calculus I Credit: 4.

Science Sequence Credit: 4.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.

PHED Activity Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

MATH 1920 - Calculus II Credit: 4.

Science Sequence Credit: 4.

Social/Behavioral Sciences Elective Credit: 3.

Total: 14

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.

MATH 2110 - Calculus III Credit: 4.

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

ART 1035 - Introduction to Art Credit: 3. or

MUS 1030 - Music Appreciation Credit: 3.

Total: 16

Second Semester

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

MATH 1530 - Introductory Statistics Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

SPED 2010 - Introduction to Special Education Credit: 3.

Total: 15

Junior Year

First Semester

MATH 2010 - Introduction to Linear Algebra Credit: 3.

SEED 4422 (5422) - Teaching Secondary Mathematics Using Technology Credit: 3.

SPED 3050 - Universal Design for Special Education Credit: 5.

SPED 4030 - Applied Behavior Analysis for Teachers Credit: 3.

SPED 4200 (5200) - Teaching Students with Autism Spectrum Disorders Credit: 3.

Total: 17

Second Semester

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)

READ 3350 - Teaching Reading in the Content Areas Credit: 3.

SEED 4122 (5122) - Materials and Methods of Teaching Mathematics Credit: 3.

SPED 3030 - The Education of Persons with Learning Disabilities Credit: 3.

Total: 14

Senior Year

First Semester

SEED 4322 (5322) - Teaching Algebra in Middle/High School Credit: 3.

SPED 4100 - Collaboration and Inclusive Practice Credit: 3.

SPED 4871 - Residency I Credit: 5.

SPED 4872 - Professional Seminar I Credit: 5.

Total: 16

Second Semester

SPED 4881 - Residency II Credit: 10.

SPED 4882 - Professional Seminar II Credit: 2.

Total: 12

Bachelor of Science in Education

Secondary Education, English Concentration, B.S.ED.

(Leading to Bachelor of Science in Education Degree and Tennessee teaching license if Teacher Education requirements are met.)

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

MATH Credit: 3.

Natural Sciences Credit: 4.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

Total: 13

Second Semester

ENGL 1020 - English Composition II Credit: 3.

Humanities/Fine Arts Elective Credit: 6.

Natural Sciences Credit: 4.

Elective Credit: 1.

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

Total: 17

Sophomore Year

First Semester

ENGL 2330 - Topics in World Literature Credit: 3.

ENGL 3810 - British Literature I Credit: 3.

EDPY 2210 - Educational Psychology Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Choose three semester hours from the following:

FREN 2010 - Intermediate French I Credit: 3. or

GERM 2010 - Intermediate German I Credit: 3. or

SPAN 2010 - Intermediate Spanish I Credit: 3.

Total: 15

Second Semester

ENGL 3820 - British Literature II Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 6.

Choose three semester hours from the following:

FREN 2020 - Intermediate French 2 Credit: 3. or

GERM 2020 - Intermediate German 2 Credit: 3. or

SPAN 2020 - Intermediate Spanish 2 Credit: 3.

Total: 15

Junior Year

First Semester

ENGL 3910 - American Literature I Credit: 3.

ENGL 4121 (5121) - Shakespeare Credit: 3.

READ 3350 - Teaching Reading in the Content Areas Credit: 3.

READ 4411 (5411) - The Reading-Writing Connection: Secondary Credit: 3.

ESLP 4100 (5100) - ESL Methodology and Materials for PreK-12 Credit: 3.

ENGL 4751 (5751) - Topics in Non-Western Literature Credit: 3. or

ENGL 4712 (5712) - African American Literature Credit: 3. or

ENGL 4713 (5713) - Native American Literature Credit: 3. or

ENGL 4700 Non-Western Literature Credit: 3. or

English Literature Upper Division Elective Credit: 3.

Total: 18

Second Semester

ENGL 3250 - Professional Communication I Credit: 3. or

ENGL 3400 - Introduction to Creative Writing Credit: 3. or

ENGL 4411 (5411) - Writing in the Professions Credit: 3. or

ENGL 4511 (5511) - Introduction to Descriptive Linguistics Credit: 3. or

ENGL 4521 (5521) - History of the English Language Credit: 3. or

ENGL 4531 (5531) - Grammar and Language
Credit: 3. or
ENGL 4541 (5541) - Topics in Linguistics/Language
Credit: 3. or
any Upper Division English Writing course,
Linguistics, Grammar, or History of English
Language Credit: 3.

ENGL 3920 - American Literature II Credit: 3.
FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.
FOED 3820 - Field Experiences in Education Credit:
1-2. (Two credit hours required)
READ 4570 (5570) - Young Adult Literature Credit:
3.
SEED 4120 (5120) - Materials and Methods of
Teaching English Credit: 3.

Total: 17

Senior Year

First Semester

SEED 4871 - Residency I Credit: 5.
SEED 4872 - Professional Seminar I Credit: 5.
SPED 3000 - Teaching Persons with Disabilities in
the Regular Classroom Credit: 3.

Total: 13

Second Semester

SEED 4881 - Residency II Credit: 10.
SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

Note:

¹Those students who do not place at the 2010 level as determined by a proficiency test administered by the Department of Foreign Languages or those who have not had taken two years of Foreign Language in high school will take 1010, 1020 and 2010 for nine hours in the same language.

**Secondary Education, French Concentration,
B.S.ED.
(Leading to Bachelor of Science in Education Degree
and Tennessee teaching license if Teacher
Education requirements are met.)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or
FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

FREN 2010 - Intermediate French I Credit: 3.
MATH Credit: 3.

Natural Sciences Credit: 4.

Total: 16

Second Semester

ART 1035 - Introduction to Art Credit: 3. or
MUS 1030 - Music Appreciation Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

ENGL 1020 - English Composition II Credit: 3.

FREN 2020 - Intermediate French 2 Credit: 3.

Natural Sciences Credit: 4.

Total: 16

Sophomore Year

First Semester

EDPY 2210 - Educational Psychology Credit: 3.

ENGL 2130 - Topics in American Literature Credit:
3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

FREN 3010 - Written Communication in French
Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Second Semester

FREN 3020 - Oral Communication in French Credit:
3.

FREN 3100 - French Phonetics Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

Total: 15

Junior Year

First Semester

FREN 3112 - Culture and Civilization of France
Credit: 3.

FREN Upper-Division Credit: 6.

READ 3350 - Teaching Reading in the Content
Areas Credit: 3.

Choose three hours from the following:

HIST 4550 (5550) - French Revolution and
Napoleon Credit: 3. or

HIST Upper-Division

or

SPAN 1010 - Elementary Spanish I Credit: 3. or

GERM 1010 - Elementary German I Credit: 3.

Note:

Note: If language option is chosen, must take 2
semester sequence in same language.

Total: 15

Second Semester

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

FOED 3800 - Field Experiences in Education Credit: 1-3. (One credit hour required)

FREN 3110 - Survey of French Literature I Credit: 3.
or

FREN 3120 - Survey of French Literature II Credit: 3.

SEED 4125 (5125) - Materials and Methods of Teaching Foreign Language Credit: 3.

Elective Credit: 3.

Choose three hours from the following:

HIST 4550 (5550) - French Revolution and Napoleon Credit: 3. or

HIST Upper-Division

or

SPAN 1020 - Elementary Spanish II Credit: 3. or

GERM 1020 - Elementary German II Credit: 3.

Note:

Note: If language option is chosen, must take 2 semester sequence in same language.

Total: 16

Senior Year

First Semester

SEED 4871 - Residency I Credit: 5.

SEED 4872 - Professional Seminar I Credit: 5.

SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

FREN 4925 - Teaching Licensure Senior Capstone Credit: 2.

Total: 15

Second Semester

SEED 4881 - Residency II Credit: 10.

SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

Secondary Education, German Concentration, B.S.Ed.

(Leading to the Bachelor of Science Degree and Tennessee teaching license if Teacher Education requirements are met.)

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.

GERM 2010 - Intermediate German I Credit: 3.

MATH Credit: 3.

Natural Sciences Credit: 4.

Total: 16

Second Semester

ART 1035 - Introduction to Art Credit: 3. or

MUS 1030 - Music Appreciation Credit: 3.

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

GERM 2020 - Intermediate German 2 Credit: 3.

Natural Sciences Credit: 4.

Total: 16

Sophomore Year

First Semester

EDPY 2210 - Educational Psychology Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

GERM 3010 - Written Communication in German Credit: 3.

HIST 2010 - Early United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Second Semester

HIST 2020 - Modern United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

Humanities/Fine Arts Elective Credit: 3.

GERM 3020 - Oral Communication in German Credit: 3.

GERM 3200 - Business German Credit: 3.

Total: 15

Junior Year

First Semester

GERM 3112 - German Civilization and Culture Credit: 3.

GERM 3150 - Introduction to German Literature Credit: 3.

Any Upper Division German Elective Credit: 3.

READ 3350 - Teaching Reading in the Content Areas Credit: 3.

Choose three hours from the following:

HIST 4530 (5530) - Renaissance and Reformation Credit: 3. or

HIST 4540 (5540) - Absolutism and Enlightenment Credit: 3. or

HIST 4550 (5550) - French Revolution and Napoleon Credit: 3. or

HIST 4560 (5560) - 19th Century Europe Credit: 3. or

HIST 4570 (5570) - World War II and the Cold War Credit: 3. or

GERM Upper Division

or

FREN 1010 - Elementary French I Credit: 3. or

SPAN 1010 - Elementary Spanish I Credit: 3.

Note:

Note: If language option is chosen, must take two semester sequence in same language.

Total: 15

Second Semester

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

FOED 3800 - Field Experiences in Education Credit: 1-3. (One credit hour required)

SEED 4125 (5125) - Materials and Methods of Teaching Foreign Language Credit: 3.

Any Upper Division German Elective Credit: 6.

Choose three hours from the following:

HIST 4530 (5530) - Renaissance and Reformation Credit: 3. or

HIST 4540 (5540) - Absolutism and Enlightenment Credit: 3. or

HIST 4550 (5550) - French Revolution and Napoleon Credit: 3. or

HIST 4560 (5560) - 19th Century Europe Credit: 3. or

HIST 4570 (5570) - World War II and the Cold War Credit: 3. or

GERM Upper Division Elective Credit: 3.

or

FREN 1020 - Elementary French II Credit: 3. or

SPAN 1020 - Elementary Spanish II Credit: 3.

Note:

Note: If language option is chosen, must take two semester sequence in same language.

Total: 16

Senior Year

First Semester

GERM 4925 - Teaching Licensure Senior Capstone Credit: 2.

SEED 4871 - Residency I Credit: 5.

SEED 4872 - Professional Seminar I Credit: 5.

SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Total: 15

Second Semester

SEED 4881 - Residency II Credit: 10.

SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

Secondary Education, Mathematics Concentration, B.S.ED.

(Leading to Bachelor of Science in Education Degree and Tennessee teaching license if Teacher Education requirements are met.)

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.

MATH 1910 - Calculus I Credit: 4.

Natural Sciences Credit: 4.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

Total: 14

Second Semester

ENGL 1020 - English Composition II Credit: 3.

MATH 1920 - Calculus II Credit: 4.

PHED Activity Credit: 1.

Natural Sciences Credit: 4.

Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Sophomore Year

First Semester

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.

MATH 2110 - Calculus III Credit: 4.

Social/Behavioral Sciences Elective Credit: 3.

Total: 16

Second Semester

HIST 2020 - Modern United States History Credit: 3.

MATH 2010 - Introduction to Linear Algebra Credit: 3.

MATH 2120 - Differential Equations Credit: 3.

Humanities/Fine Arts Elective Credit: 6.

Total: 15

Junior Year

First Semester

MATH 3070 - Statistical Methods I Credit: 3.

MATH 3400 - Introduction to Concepts of Mathematics Credit: 3.

MATH 4210 (5210) - Numerical Analysis I Credit: 3.

READ 3350 - Teaching Reading in the Content Areas Credit: 3.

SEED 4422 (5422) - Teaching Secondary Mathematics Using Technology Credit: 3.

Total: 15

Second Semester

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.
FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)
MATH 3430 - College Geometry Credit: 3.

MATH 4010 (5010) - Modern Algebra I Credit: 3. or
MATH 4050 (5050) - Number Theory Credit: 3. or
MATH 4350 (5350) - Introductory Combinatorics Credit: 3. or
MATH 4360 (5360) - Graph Theory Credit: 3.

MATH 4610 (5610) - History of Mathematics I Credit: 3. or
MATH 4620 (5620) - History of Mathematics II Credit: 3.

SEED 4122 (5122) - Materials and Methods of Teaching Mathematics Credit: 3.

Total: 17

Senior Year

First Semester

SEED 4322 (5322) - Teaching Algebra in Middle/High School Credit: 3.
SEED 4871 - Residency I Credit: 5.
SEED 4872 - Professional Seminar I Credit: 5.
SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Total: 16

Second Semester

SEED 4881 - Residency II Credit: 10.
SEED 4882 - Professional Seminar II Credit: 4.

Total: 12

**Secondary Education, Non-Licensure Concentration, B.S.ED.
(Leading to the Bachelor of Science Degree in Education)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

FOED 1820 - Introductory Field Experience Credit: 1. or
FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.
HIST 2010 - Early United States History Credit: 3.
Natural Sciences Credit: 4.
MATH Credit: 3.

Total: 16

Second Semester

ENGL 1020 - English Composition II Credit: 3.

HIST 2020 - Modern United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.
Natural Sciences Credit: 4.

Total: 16

Sophomore Year

Social/Behavioral Sciences Elective Credit: 3.
Humanities/Fine Arts Elective¹ Credit: 6.

COMM 2025 - Fundamentals of Communication Credit: 3. or

PC 2500 - Communicating in the Professions Credit: 3.

Content Electives Credit: 12.

Electives Credit: 4.

Total: 28

Junior Year

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

READ 3350 - Teaching Reading in the Content Areas Credit: 3.

Content Electives Credit: 15.

Upper Division Electives Credit: 4.

SEED 4120 (5120) - Materials and Methods of Teaching English Credit: 3. or

SEED 4122 (5122) - Materials and Methods of Teaching Mathematics Credit: 3. or

SEED 4123 (5123) - Materials and Methods of Teaching the Sciences Credit: 3. or

SEED 4124 (5124) - Materials and Methods of Teaching Social Studies Credit: 3.

Total: 28

Senior Year

SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Upper Division Content Electives² Credit: 15.

Upper Division Electives Credit: 5.

Electives Credit: 9.

Total: 32

Notes:

¹At least one course in Humanities/Fine Arts must be in Literature (ENGL 2130, 2235 or 2330).

²Overall, the program must include at least 36 hours of Upper Division coursework.

**Secondary Education, Spanish Concentration, B.S.ED.
(Leading to Bachelor of Science in Education Degree and Tennessee teaching license if Teacher Education requirements are met.)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:
1. or
FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

MATH Credit: 3.
Natural Sciences Credit: 4.
SPAN 2010 - Intermediate Spanish I Credit: 3.

Total: 16

Second Semester

ART 1035 - Introduction to Art Credit: 3. or
MUS 1030 - Music Appreciation Credit: 3.

COMM 2025 - Fundamentals of Communication
Credit: 3. or
PC 2500 - Communicating in the Professions Credit:
3.

ENGL 1020 - English Composition II Credit: 3.
Natural Sciences Credit: 4.
SPAN 2020 - Intermediate Spanish 2 Credit: 3.

Total: 16

Sophomore Year

First Semester

ENGL 2130 - Topics in American Literature Credit:
3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.
SPAN 3010 - Written Communication in Spanish
Credit: 3.
Social/Behavioral Sciences Elective Credit: 6.

Total: 15

Second Semester

EDPY 2210 - Educational Psychology Credit: 3.
HIST 2020 - Modern United States History Credit: 3.
Humanities/Fine Arts Elective Credit: 3.
SPAN 3020 - Oral Communication in Spanish Credit:
3.

SPAN 4010 (5010) - Introduction to the Literature of
Spain Credit: 3. or
SPAN 4020 (5020) - Introduction to the Literature of
Spanish America Credit: 3.

Total: 15

Junior Year

First Semester

READ 3350 - Teaching Reading in the Content
Areas Credit: 3.

SPAN 4110 (5110) - Culture and Civilization of
Spain Credit: 3. or

SPAN 4120 (5120) - Culture and Civilization of
Spanish America Credit: 3.

SPAN Upper Division course Credit: 6.

Choose three hours from the following:

HIST 3710 - Survey of Spanish History Credit: 3. or
HIST 4790-4799 (5790) - Latin American Studies
Credit: 3. or

Any Approved Upper Division HIST or
Any Upper Division SPAN
or

FREN 1010 - Elementary French I Credit: 3. or
GERM 1010 - Elementary German I Credit: 3.

Note:

Note: If language option is chosen, must take two
semester sequence in same language.

Total: 15

Second Semester

FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.
FOED 3800 - Field Experiences in Education Credit:
1-3. (One credit hour required).
SEED 4125 (5125) - Materials and Methods of
Teaching Foreign Language Credit: 3.
SPAN 4810 - Special Topics in Spanish Credit: 3.

Choose three hours from the following:

HIST 3710 - Survey of Spanish History Credit: 3. or
HIST 4790-4799 (5790) - Latin American Studies
Credit: 3. or

Any Approved Upper Division HIST or
Any Upper Division SPAN
or

FREN 1020 - Elementary French II Credit: 3. or
GERM 1020 - Elementary German II Credit: 3.

Note:

Note: If language option is chosen, must take two
semester sequence in same language.

Choose three hours from one of the following that has
not already been taken:

SPAN 4010 (5010) - Introduction to the Literature of
Spain Credit: 3.
SPAN 4020 (5020) - Introduction to the Literature of
Spanish America Credit: 3.
SPAN 4110 (5110) - Culture and Civilization of
Spain Credit: 3.
SPAN 4120 (5120) - Culture and Civilization of
Spanish America Credit: 3.

Total: 16

Senior Year

First Semester

SEED 4871 - Residency I Credit: 5.
SEED 4872 - Professional Seminar I Credit: 5.
SPED 3000 - Teaching Persons with Disabilities in
the Regular Classroom Credit: 3.
SPAN 4925 - Teaching Licensure Senior Capstone
Credit: 2.

Total: 15

Second Semester

SEED 4881 - Residency II Credit: 10.

SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

Note:

¹ SPAN 3010 is prerequisite to all Upper Division Spanish language courses.

² If SPAN 4010 (5010) and SPAN 4020 (5020) have been previously completed, another Upper Division Spanish course should be substituted for SPAN 3510 or SPAN 3550.

³ SPAN 4010 (5010) and SPAN 4110 (5110) are offered Fall term in alternate years. SPAN 4020 (5020) and SPAN 4120 (5120) are offered Spring term in alternate years. Choose the course offered that term.

**Secondary Education, Speech Communication & Theatre Concentration, B.S.ED.
(Leading to Bachelor of Science in Education Degree and Tennessee teaching license if Teacher Education requirements are met.)**

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.

FOED 2011 - Introduction to Teaching and Technology Credit: 2.

Natural Sciences Credit: 4.

FOED 1820 - Introductory Field Experience Credit: 1. or

FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

MATH 1010 - Math for General Studies Credit: 3. or any approved General Education Math Credit: 3.

Choose three semester hours from the following:

FREN 2010 - Intermediate French I Credit: 3. Or ¹

GERM 2010 - Intermediate German I Credit: 3. Or ¹

SPAN 2010 - Intermediate Spanish I Credit: 3. ¹

Total: 16

Second Semester

ART 1035 - Introduction to Art Credit: 3. or

MUS 1030 - Music Appreciation Credit: 3.

ENGL 1020 - English Composition II Credit: 3.

Natural Sciences Credit: 4.

THEA 1030 - Introduction to Theatre Credit: 3.

Choose three semester hours from the following:

FREN 2020 - Intermediate French 2 Credit: 3. or ¹

GERM 2020 - Intermediate German 2 Credit: 3. or ¹

SPAN 2020 - Intermediate Spanish 2 Credit: 3. ¹

Total: 16

Sophomore Year

First Semester

EDPY 2210 - Educational Psychology Credit: 3.

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.

THEA 2015 - Acting II Credit: 3.

THEA 2110 - Play Production Credit: 1.

Total: 13

Second Semester

COMM 2025 - Fundamentals of Communication Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 6

THEA Elective Credit: 3.

Total: 15

Junior Year

First Semester

COMM 3630 - Discussion and Parliamentary Procedure Credit: 3.

COMM 4430 (5430) - Advanced Interpersonal Communication Credit: 3.

COMM 3130 - Speech Activities Credit: 3.

ENGL 4121 (5121) - Shakespeare Credit: 3.

FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

READ 3350 - Teaching Reading in the Content Areas Credit: 3.

Total: 18

Second Semester

CUED 4120 (5120) - Materials and Methods for Teaching Speech and Theatre Credit: 3. or SEED 4120 (5120) - Materials and Methods of Teaching English Credit: 3.

ENGL 3910 - American Literature I Credit: 3. or

ENGL 3920 - American Literature II Credit: 3.

FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)

THEA 2025 - Stagecraft II Credit: 3.

THEA 4300 - Play Directing Credit: 3.

THEA 4500 (5500) - Creative Dramatics Credit: 3.

Total: 17

Senior Year

First Semester

SEED 4871 - Residency I Credit: 5.

SEED 4872 - Professional Seminar I Credit: 5.

SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Total: 13

Second Semester

SEED 4881 - Residency II Credit: 10.

SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

Note:

¹ Those students who do not place at the 2010 level as determined by a proficiency test administered by the

Department of Foreign Languages or those students who have not taken two years of foreign language in high school will take 1010, 1020, and 2010 for nine hours in the same language.

Bachelor of Science in Education: Science Secondary Education, Biology Concentration, B.S.ED.
(Leading to Bachelor of Science in Education Degree and Tennessee teaching license if Teacher Education requirements are met.)

Curriculum

Freshman Year

First Semester

BIOL 1113 - General Biology I Credit: 4.
ENGL 1010 - English Composition I Credit: 3.
FOED 2011 - Introduction to Teaching and Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or
FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

Humanities/Fine Arts Elective Credit: 3.
MATH 1530 - Introductory Statistics Credit: 3.

Total: 16

Second Semester

BIOL 1123 - General Biology II Credit: 4.

COMM 2025 - Fundamentals of Communication Credit: 3. or
PC 2500 - Communicating in the Professions Credit: 3.

ENGL 1020 - English Composition II Credit: 3.
GEOL 1040 - Physical Geology Credit: 4.
Humanities/Fine Arts Elective Credit: 3.

Total: 17

Sophomore Year

First Semester

BIOL 2310 - General Botany Credit: 4.

ENGL 2130 - Topics in American Literature Credit: 3. or
ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2010 - Early United States History Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.
Elective Credit: 1.

Total: 14

Second Semester

CHEM 1110 - General Chemistry I Credit: 4.
EDPY 2210 - Educational Psychology Credit: 3.
HIST 2020 - Modern United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.
Total: 13

Junior Year

First Semester

BIOL 2010 - Human Anatomy and Physiology I Credit: 4.
BIOL 3130 - General Ecology Credit: 4.
BIOL 3810 - General Genetics Credit: 4.

MATH 1130 - College Algebra Credit: 3. or
MATH 1710 - Pre-calculus Algebra Credit: 3.

READ 3350 - Teaching Reading in the Content Areas Credit: 3.

Total: 18

Second Semester

BIOL 3140 - Cellular Biology Credit: 4.
FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.
FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)
PHYS 2010 - Algebra-based Physics I Credit: 4.
SEED 4123 (5123) - Materials and Methods of Teaching the Sciences Credit: 3.
Elective Credit: 1.

Total: 17

Senior Year

First Semester

SEED 4871 - Residency I Credit: 5.
SEED 4872 - Professional Seminar I Credit: 5.
SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Total: 13

Second Semester

SEED 4881 - Residency II Credit: 10.
SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

Secondary Education, Chemistry Concentration, B.S.ED.
(Leading to Bachelor of Science in Education Degree and Tennessee teaching license if Teacher Education requirements are met.)

Curriculum

Freshman Year

First Semester

ENGL 1010 - English Composition I Credit: 3.
FOED 2011 - Introduction to Teaching and Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit: 1. or
FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

CHEM 1110 - General Chemistry I Credit: 4.

MATH 1530 - Introductory Statistics Credit: 3.

Total: 13

Second Semester

COMM 2025 - Fundamentals of Communication

Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

CHEM 1120 - General Chemistry II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.

GEOL 1040 - Physical Geology Credit: 4.

Humanities/Fine Arts Elective Credit: 6

Total: 20

Sophomore Year

First Semester

BIOL 1010 - Introduction to Biology Credit: 4. or

BIOL 1113 - General Biology I Credit: 4.

HIST 2010 - Early United States History Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

EDPY 2210 - Educational Psychology Credit: 3.

Total: 13

Second Semester

ASTR 1010 - Introduction to Modern Astronomy

Credit: 4. or

ASTR 1020 - Introduction to Modern Astronomy

Credit: 4. or

ASTR 1030 Credit: 4.

BIOL 1020 - Diversity of Life Credit: 4. or

BIOL 1123 - General Biology II Credit: 4.

ENGL 2130 - Topics in American Literature Credit:

3. or

ENGL 2235 - Topics in British Literature Credit: 3. or

ENGL 2330 - Topics in World Literature Credit: 3.

HIST 2020 - Modern United States History Credit: 3.

Total: 14

Junior Year

First Semester

CHEM 3005 - Elementary Organic Chemistry Credit:

4. or

CHEM 3010 - Organic Chemistry I Credit: 4.

CHEM 3410 - Quantitative Analysis Credit: 4.

MATH 1130 - College Algebra Credit: 3. or

MATH 1710 - Pre-calculus Algebra Credit: 3.

READ 3350 - Teaching Reading in the Content

Areas Credit: 3.

Social/Behavioral Sciences Elective Credit: 3.

Total: 17

Second Semester

CHEM 3500 - Elements of Physical Chemistry

Credit: 3.

FOED 3010 - Integrating Instructional Technology
into the Classroom Credit: 3.

FOED 3820 - Field Experiences in Education Credit:
1-2. (Two credit hours required)

MATH 1830 - Applied Calculus Credit: 3.

PHYS 2010 - Algebra-based Physics I Credit: 4.

SEED 4123 (5123) - Materials and Methods of
Teaching the Sciences Credit: 3.

Total: 18

Senior Year

First Semester

SEED 4871 - Residency I Credit: 5.

SEED 4872 - Professional Seminar I Credit: 5.

SPED 3000 - Teaching Persons with Disabilities in
the Regular Classroom Credit: 3.

Total: 13

Second Semester

SEED 4881 - Residency II Credit: 10.

SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

Secondary Education, Earth Science Concentration, B.S.ED.

**(Leading to Bachelor of Science in Education Degree
and Tennessee teaching license if Teacher
Education requirements are met.)**

Curriculum

Freshman Year

First Semester

BIOL 1010 - Introduction to Biology Credit: 4. or

BIOL 1113 - General Biology I Credit: 4.

ENGL 1010 - English Composition I Credit: 3.

FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

FOED 1820 - Introductory Field Experience Credit:

1. or

FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

MATH 1530 - Introductory Statistics Credit: 3.

Total: 13

Second Semester

BIOL 1020 - Diversity of Life Credit: 4. or

BIOL 1123 - General Biology II Credit: 4.

ENGL 1020 - English Composition II Credit: 3.

Humanities/Fine Arts Elective Credit: 6.

Social/Behavioral Sciences Elective Credit: 3.

Total: 16

Sophomore Year

First Semester

EDPY 2210 - Educational Psychology Credit: 3.

ENGL 2130 - Topics in American Literature Credit: 3. or

ENGL 2235 - Topics in British Literature Credit: 3. or
ENGL 2330 - Topics in World Literature Credit: 3.

GEOL 1040 - Physical Geology Credit: 4.
HIST 2010 - Early United States History Credit: 3.
Social/Behavioral Sciences Elective Credit: 3.

Total: 16

Second Semester

ASTR 1010 - Introduction to Modern Astronomy
Credit: 4. or

ASTR 1020 - Introduction to Modern Astronomy
Credit: 4. or

ASTR 1030 Credit: 4.

COMM 2025 - Fundamentals of Communication
Credit: 3. or

PC 2500 - Communicating in the Professions Credit:
3.

GEOL 1045 - Earth Environment, Resources and
Society Credit: 4.

HIST 2020 - Modern United States History Credit: 3.

Total: 14

Junior Year

First Semester

- BIOL 3130 - General Ecology Credit: 4.
- GEOL 3230 - Structural Geology and Tectonics Credit:
4.

- GEOL 3410 - Paleontology Credit: 4. or
- other 3000 course Credit: 4.

- MATH 1130 - College Algebra Credit: 3. or
- MATH 1710 - Pre-calculus Algebra Credit: 3.

- READ 3350 - Teaching Reading in the Content Areas
Credit: 3.

Total: 18

Second Semester

- FOED 3010 - Integrating Instructional Technology into
the Classroom Credit: 3.

- FOED 3820 - Field Experiences in Education Credit:
1-2. (Two credit hours required)

- GEOL 4150 (5150) - Geomorphology Credit: 4.

- GEOL Upper Division Elective Credit: 3.

- MATH 1830 - Applied Calculus Credit: 3.

- SEED 4123 (5123) - Materials and Methods of
Teaching the Sciences Credit: 3.

Total: 18

Senior Year

First Semester

- SEED 4871 - Residency I Credit: 5.
- SEED 4872 - Professional Seminar I Credit: 5.

- SPED 3000 - Teaching Persons with Disabilities in the
Regular Classroom Credit: 3.

Total: 13

Second Semester

- SEED 4881 - Residency II Credit: 10.

- SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

Secondary Education, Physics Concentration, B.S.ED.

**(Leading to Bachelor of Science in Education Degree
and Tennessee teaching license if Teacher
Education requirements are met.)**

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.

- ENGL 1010 - English Composition I Credit: 3.

- FOED 2011 - Introduction to Teaching and
Technology Credit: 2.

- FOED 1820 - Introductory Field Experience Credit: 1.
or

- FOED 1822 - Introductory Field Experience and
Orientation Credit: 1.

- MATH 1910 - Calculus I Credit: 4.

Total: 14

Second Semester

- ENGL 1020 - English Composition II Credit: 3.

- HIST 1310 - Science and World Cultures Credit: 3.

- MATH 1920 - Calculus II Credit: 4.

- PHYS 2110 - Calculus-based Physics I Credit: 4.

- Social/Behavioral Sciences Elective Credit: 3.

Total: 17

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3.
or

- ENGL 2235 - Topics in British Literature Credit: 3. or

- ENGL 2330 - Topics in World Literature Credit: 3.

- MATH 2110 - Calculus III Credit: 4.

- HIST 2010 - Early United States History Credit: 3.

- PHYS 2120 - Calculus-based Physics II Credit: 4.

Total: 14

Second Semester

- HIST 2020 - Modern United States History Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.

- MATH 2120 - Differential Equations Credit: 3.

- PHYS 2420 - Modern Physics Credit: 3.

- PHYS 2920 - Mathematical Physics Credit: 3.

Total: 15

Junior Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- EDPY 2210 - Educational Psychology Credit: 3.
- GEOL 1070 - Concepts of Geology Credit: 3.

- PHYS 3610 - Classical Mechanics Credit: 3. or
- PHYS 4903 - Selected Topics in Physics Credit: 3.

- READ 3350 - Teaching Reading in the Content Areas Credit: 3.

- Social/Behavioral Sciences Elective Credit: 3.

Total: 18

Second Semester

- BIOL 1080 - Concepts of Biology Credit: 3.
- FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credits required)
- FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

- PHYS Elective (credit 3) or
- PHYS 1903 - Special Topics in Physics and Physics Education Credit: 1-4. (Three credit hours required)

- PHYS 3120 - Statistical Thermal Physics Credit: 3.
- SEED 4123 (5123) - Materials and Methods of Teaching the Sciences Credit: 3.

Total: 17

Senior Year

First Semester

- SEED 4871 - Residency I Credit: 5.
- SEED 4872 - Professional Seminar I Credit: 5.
- SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Total: 13

Second Semester

- SEED 4881 - Residency II Credit: 10.
- SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Bachelor of Science in Education: Social Studies
Secondary Education, Economics Concentration,
B.S.ED.**

**(Leading to Bachelor of Science in Education Degree
and Tennessee teaching license if Teacher
Education requirements are met.)**

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.

- FOED 2011 - Introduction to Teaching and Technology Credit: 2.

- FOED 1820 - Introductory Field Experience Credit: 1. or

- FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

- HIST 2010 - Early United States History Credit: 3.

- MATH Credit: 3.

- Natural Sciences Credit: 4.

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.

- HIST 2020 - Modern United States History Credit: 3.

- POLS 1030 - American Government Credit: 3.

- Natural Sciences Credit: 4.

- Elective Credit: 1.

Total: 14

Sophomore Year

First Semester

- ANTH 1100 - Introduction to Anthropology Credit: 3. or
- SOC 1010 - Introduction to Sociology Credit: 3.

- COMM 2025 - Fundamentals of Communication Credit: 3. or

- PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or

- ENGL 2330 - Topics in World Literature Credit: 3.

- HIST 2320 - Modern World History Credit: 3.

- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 15

Second Semester

- ECON 2020 - Principles of Macroeconomics Credit: 3.

- EDPY 2210 - Educational Psychology Credit: 3.

- GEOG 1012 - Cultural Geography Credit: 3.

- HIST 2310 - Early World History Credit: 3.

- Humanities/Fine Arts Elective Credit: 3

Total: 15

Junior Year

First Semester

- ECON 2010 - Principles of Microeconomics Credit: 3.

- ECON Elective Credit: 3.

- FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

- HIST 3100 - Tennessee Topics Credit: 3.

- HIST 4710 - History of Africa Credit: 3. or

- HIST 4730 (5730) - The Modern Middle East Credit: 3.
or
- HIST 4740 (5740) - History of Japan Credit: 3. or
- HIST 4750 (5750) - History of China Credit: 3. or
- HIST 4760 (5760) - Vietnam: Its Wars and Their Aftermath Credit: 3. or
- HIST 4790-4799 (5790) - Latin American Studies Credit: 3.

- READ 3350 - Teaching Reading in the Content Areas Credit: 3.

Total: 18

Second Semester

- ECON Upper Division Elective Credit: 9.
- FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)

- HIST 2210 - Early Western Civilization Credit: 3. or
- HIST 2220 - Modern Western Civilization Credit: 3.

- SEED 4124 (5124) - Materials and Methods of Teaching Social Studies Credit: 3.

Total: 17

Senior Year

First Semester

- SEED 4871 - Residency I Credit: 5.
- SEED 4872 - Professional Seminar I Credit: 5.
- SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Total: 13

Second Semester

- SEED 4881 - Residency II Credit: 10.
- SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Secondary Education, Geography Concentration,
B.S.ED.
(Leading to Bachelor of Science in Education Degree
and Tennessee teaching license if Teacher
Education requirements are met.)**

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.

- FOED 1820 - Introductory Field Experience Credit: 1.
or
- FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

- FOED 2011 - Introduction to Teaching and Technology Credit: 2.
- HIST 2010 - Early United States History Credit: 3.
- MATH Credit: 3.

- Natural Sciences Credit: 4.

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- POLS 1030 - American Government Credit: 3.
- Natural Sciences Credit: 4.
- Elective Credit: 1.

Total: 14

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3.
or

- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- GEOG 1012 - Cultural Geography Credit: 3.

- HIST 2320 - Modern World History Credit: 3.

- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 15

Second Semester

- ANTH 1100 - Introduction to Anthropology Credit: 3. or
- SOC 1010 - Introduction to Sociology Credit: 3.

- EDPY 2210 - Educational Psychology Credit: 3.

- HIST 2210 - Early Western Civilization Credit: 3. or

- HIST 2220 - Modern Western Civilization Credit: 3.

- HIST 2310 - Early World History Credit: 3.

- Humanities/Fine Arts Elective Credit: 3

Total: 15

Junior Year

First Semester

- FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

- HIST 3100 - Tennessee Topics Credit: 3.

- HIST 3410 - Introduction to Historical Methods Credit: 3.

- READ 3350 - Teaching Reading in the Content Areas Credit: 3.

- GEOG Elective Credit: 6.

Choose three semester hours from the following:

- HIST 4710 - History of Africa Credit: 3. or

- HIST 4730 (5730) - The Modern Middle East Credit: 3.
or

- HIST 4740 (5740) - History of Japan Credit: 3. or

- HIST 4750 (5750) - History of China Credit: 3. or

- HIST 4760 (5760) - Vietnam: Its Wars and Their Aftermath Credit: 3. or
- HIST 4790-4799 (5790) - Latin American Studies Credit: 3.

Total: 21

Second Semester

- FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)
- GEOG 4210 (5210) - Cartography Credit: 3.
- GEOG Upper Division Elective Credit: 6.
- SEED 4124 (5124) - Materials and Methods of Teaching Social Studies Credit: 3.

Total: 14

Senior Year

First Semester

- SEED 4871 - Residency I Credit: 5.
- SEED 4872 - Professional Seminar I Credit: 5.
- SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Total: 13

Second Semester

- SEED 4881 - Residency II Credit: 10.
- SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Secondary Education, History Concentration,
B.S.ED.
(Leading to Bachelor of Science in Education Degree
and Tennessee teaching license if Teacher
Education requirements are met.)**

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- FOED 2011 - Introduction to Teaching and Technology Credit: 2.

- FOED 1820 - Introductory Field Experience Credit: 1. or
- FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

- HIST 2010 - Early United States History Credit: 3.
- MATH Credit: 3.
- Natural Sciences Credit: 4.

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- POLS 1030 - American Government Credit: 3.
- Natural Sciences Credit: 4.
- Elective Credit: 1.

Total: 14

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ANTH 1100 - Introduction to Anthropology Credit: 3. or
- SOC 1010 - Introduction to Sociology Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- HIST 2320 - Modern World History Credit: 3.
- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 15

Second Semester

- EDPY 2210 - Educational Psychology Credit: 3.
- GEOG 1012 - Cultural Geography Credit: 3.

- HIST 2210 - Early Western Civilization Credit: 3. or
- HIST 2220 - Modern Western Civilization Credit: 3.

- HIST 2310 - Early World History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3

Total: 15

Junior Year

First Semester

- FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.
- HIST 3100 - Tennessee Topics Credit: 3.
- READ 3350 - Teaching Reading in the Content Areas Credit: 3.
- Electives Credit: 3.
- History Upper Division Electives Credit: 3

Select one:

- HIST 4710 - History of Africa Credit: 3. or
- HIST 4730 (5730) - The Modern Middle East Credit: 3. or
- HIST 4740 (5740) - History of Japan Credit: 3. or
- HIST 4750 (5750) - History of China Credit: 3. or
- HIST 4760 (5760) - Vietnam: Its Wars and Their Aftermath Credit: 3. or
- HIST 4790-4799 (5790) - Latin American Studies Credit: 3.

Total: 18

Second Semester

- FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)
- HIST Upper Division Electives Credit: 6.
- Electives from POLS, ECON, GEOG Credit: 6.
- SEED 4124 (5124) - Materials and Methods of Teaching Social Studies Credit: 3.

Total: 17

Senior Year

First Semester

- SEED 4871 - Residency I Credit: 5.
- SEED 4872 - Professional Seminar I Credit: 5.
- SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Total: 13

Second Semester

- SEED 4881 - Residency II Credit: 10.
- SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

**Secondary Education, Political Science
Concentration, B.S.ED.
(Leading to Bachelor of Science in Education Degree
and Tennessee teaching license if Teacher
Education requirements are met.)**

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- FOED 2011 - Introduction to Teaching and Technology Credit: 2.

- FOED 1820 - Introductory Field Experience Credit: 1.
or
- FOED 1822 - Introductory Field Experience and Orientation Credit: 1.

- HIST 2010 - Early United States History Credit: 3.
- MATH Credit: 3.
- Natural Sciences Credit: 4.

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- POLS 1030 - American Government Credit: 3.
- Natural Sciences Credit: 4.
- Elective Credit: 1.

Total: 14

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3.
or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- HIST 2320 - Modern World History Credit: 3.
- PSY 1030 - Introduction to Psychology Credit: 3.

- SOC 1010 - Introduction to Sociology Credit: 3. or
 - ANTH 1100 - Introduction to Anthropology Credit: 3.
- Total: 15

Second Semester

- ECON 2020 - Principles of Macroeconomics Credit: 3.
- EDPY 2210 - Educational Psychology Credit: 3.
- GEOG 1012 - Cultural Geography Credit: 3.
- HIST 2310 - Early World History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3

Total: 15

Junior Year

First Semester

- FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.
- HIST 3100 - Tennessee Topics Credit: 3.
- POLS Elective Credit: 3.
- POLS Upper Division Elective Credit: 3.
- READ 3350 - Teaching Reading in the Content Areas Credit: 3.

Select one:

- HIST 4710 - History of Africa Credit: 3. or
- HIST 4730 (5730) - The Modern Middle East Credit: 3.
or
- HIST 4740 (5740) - History of Japan Credit: 3. or
- HIST 4750 (5750) - History of China Credit: 3. or
- HIST 4760 (5760) - Vietnam: Its Wars and Their Aftermath Credit: 3. or
- HIST 4790-4799 (5790) - Latin American Studies Credit: 3.

Total: 18

Second Semester

- FOED 3820 - Field Experiences in Education Credit: 1-2. (Two credit hours required)

- HIST 2210 - Early Western Civilization Credit: 3. or
- HIST 2220 - Modern Western Civilization Credit: 3.

- POLS 3330 - State and Local Government Credit: 3.
- POLS Upper Division Elective Credit: 6
- SEED 4124 (5124) - Materials and Methods of Teaching Social Studies Credit: 3.

Total: 17

Senior Year

First Semester

- SEED 4871 - Residency I Credit: 5.
- SEED 4872 - Professional Seminar I Credit: 5.
- SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.

Total: 13

Second Semester

- SEED 4881 - Residency II Credit: 10.
- SEED 4882 - Professional Seminar II Credit: 2.

Total: 12

Department of Earth Sciences

Geosciences, Environmental Geology Concentration, B.S.

(Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- GEOL 1020 - Field Experiences in the Geosciences Credit: 1. ¹

- GEOL 1040 - Physical Geology Credit: 4.
- HIST 2010 - Early United States History Credit: 3.
- MATH Credit: 3-5. ²

Total: 17-19

Second Semester

- CHEM 1120 - General Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- GEOL 1045 - Earth Environment, Resources and Society Credit: 4.
- HIST 2020 - Modern United States History Credit: 3.

Total: 14

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3.
- or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- GEOG 4510 (5510) - Theory of GIS I Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- MATH 3070 - Statistical Methods I Credit: 3.

- PHYS 2010 - Algebra-based Physics I Credit: 4. or
- BIOL 1020 - Diversity of Life Credit: 4.

Total: 16

Second Semester

- GEOL 2500 - Geological Fundamentals Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- PHYS 2020 - Algebra-based Physics II Credit: 4. or
- BIOL 3130 - General Ecology Credit: 4.

- Required Course from Environmental Geology Concentration Credit: 3-4.

Total: 13-14

Junior Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.
- Directed Electives from EGEO Concentration Credit: 3-4.
- MATH or Free Elective Credit: 3. ³

- Required Courses from EGEO Concentration Credit: 3-4.

- Social/Behavioral Sciences Elective Credit: 3.

Total: 15-17

Second Semester

- Directed Electives from EGEO Concentration Credit: 3-4.

- Required Courses from EGEO Concentration Credit: 6-8.

- Social/Behavioral Sciences Elective Credit: 3.

Total: 12-15

Senior Year

First Semester

- Directed Electives from EGEO Concentration Credit: 3-4.

- Free Electives Credit: 2-4.

- GEOL 4930 - Senior Thesis Credit: 3.

- MATH or Free Elective Credit: 3. ³

- Required Courses from EGEO Concentration Credit: 3-4.

Total: 14-18

Second Semester

- Free Electives Credit: 2-11.

- GEOL 4931 - Senior Thesis Credit: 3.

- Required Courses from EGEO Concentration Credit: 3-4.

Total: 12-18

Note:

¹This course not included in 120-hour curriculum.

²MATH 1130, MATH 1730 or MATH 1910

³If MATH 1130 was taken, then take MATH 1720; otherwise take a free elective.

Required Environmental Geology Concentration Courses (21 hours)

- GEOL 3200 - Water Resources Credit: 3.

- GEOL 4150 (5150) - Geomorphology Credit: 4.

- GEOL 4200 - Geological Exploration Techniques Credit: 4.

- GEOL 4410 (5410) - Remote Sensing Credit: 3.

- GEOL 4711 (5711) - Hydrogeology Credit: 4.

- GEOG 4650 (5650) - Environmental Applications of GIS Credit: 3.

Environmental Concentration Directed Electives, any three of the following courses, (9-11 hours)

- AGRN 4220 (5220) - Environmental Soil Chemistry Credit: 3.

- AGRN 4230 (5230) - Soil Classification Credit: 3.

- BIOL 2310 - General Botany Credit: 4.

- BIOL 4610 (5610) - Invertebrate Zoology Credit: 3.

- BIOL 4840 (5840) - Limnology Credit: 3.

- GEOG 1100 - Global Climate Change Credit: 3.

- GEOG 2100 - Introduction to Meteorology Credit: 4.

- GEOL 2000 - Earth Evolution and Life History Credit: 3.
- WFS 4500 (5500) - National Wildlife Policy Credit: 3.

**Geosciences, Geographic Information Systems Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- GEOL 1020 - Field Experiences in the Geosciences Credit: 1.¹
- GEOL 1040 - Physical Geology Credit: 4.
- HIST 2010 - Early United States History Credit: 3.
- MATH Credit: 3-5.²

Total: 17-19

Second Semester

- CHEM 1120 - General Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- GEOL 1045 - Earth Environment, Resources and Society Credit: 4.
- HIST 2020 - Modern United States History Credit: 3.

Total: 14

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.
- MATH 3070 - Statistical Methods I Credit: 3.

- PHYS 2010 - Algebra-based Physics I Credit: 4. or
- BIOL 1020 - Diversity of Life Credit: 4.

Total: 13

Second Semester

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4. or
- WEBD 1500 - Introduction to Web Design Credit: 3.

- GEOG 4510 (5510) - Theory of GIS I Credit: 3.
- GEOL 2500 - Geological Fundamentals Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.

- PHYS 2020 - Algebra-based Physics II Credit: 4. or
- BIOL 3130 - General Ecology Credit: 4.

Total: 16-17

Junior Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.

- Directed Electives from GIS Concentration Credit: 3-4.
- Required Courses from GIS Concentration Credit: 6.
- Social/Behavioral Sciences Elective Credit: 3.

Total: 15-16

Second Semester

- Directed Electives from GIS Concentration Credit: 3-4.
- Required Courses from GIS Concentration Credit: 9.
- Social/Behavioral Sciences Elective Credit: 3.

Total: 15-16

Senior Year

First Semester

- Directed Electives from GIS Concentration Credit: 3-4.
- Free Electives Credit: 3-5.
- GEOL 4930 - Senior Thesis Credit: 3.
- MATH or Free Elective Credit: 3.³

Total: 12-15

Second Semester

- Free Electives Credit: 9-12.
- GEOL 4931 - Senior Thesis Credit: 3.

Total: 12-15

Note:

¹This course not included in 120-hour curriculum.

²MATH 1130, MATH 1730 or MATH 1910

³If MATH 1130 was taken, then take MATH 1720; otherwise take a free elective.

Geographical Information Systems (GIS) Concentration
Required Courses (15 hours)

- WEBD 1500 - Introduction to Web Design Credit: 3.

- GEOG 4210 (5210) - Cartography Credit: 3.
- GEOG 4650 (5650) - Environmental Applications of GIS Credit: 3.

- GEOG 4850 (5850) - Advanced GIS Credit: 3.
- GEOL 4410 (5410) - Remote Sensing Credit: 3.

Geographical Information Systems (GIS) Concentration
Directed Electives, any three of the following courses (9-10 hours)

- GEOG 1100 - Global Climate Change Credit: 3.
- GEOG 1035 - World Regional Geography I Credit: 3.
- GEOG 2100 - Introduction to Meteorology Credit: 4.
- GEOG 3010 - Geography of the United States Credit: 3.

- GEOG 3200 - Water Resources Credit: 3.
- GEOG 4150 (5150) - Geomorphology Credit: 4.
- GEOG 4511 (5511) - Theory of GIS II Credit: 3.
- GEOG 4711 (5711) - Hydrogeology Credit: 4.
- GEOL 3200 - Water Resources Credit: 3.
- GEOL 4150 (5150) - Geomorphology Credit: 4.
- GEOL 4711 (5711) - Hydrogeology Credit: 4.

- MATH 3080 - Statistical Methods II Credit: 3. **or**

- PSY 3010 - Statistics and Experimental Design Credit: 3.

**Geosciences, Geography Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- GEOL 1020 - Field Experiences in the Geosciences Credit: 1. ¹
- GEOL 1040 - Physical Geology Credit: 4.
- HIST 2010 - Early United States History Credit: 3.
- MATH Credit: 3-5. ²

Total: 17-19

Second Semester

- CHEM 1120 - General Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- GEOL 1045 - Earth Environment, Resources and Society Credit: 4.
- HIST 2020 - Modern United States History Credit: 3.

Total: 14

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3.
- or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.

- PHYS 2010 - Algebra-based Physics I Credit: 4. or
- BIOL 1020 - Diversity of Life Credit: 4.

- Two Required Courses from Geography Concentration Credit: 6-7.

Total: 16-17

Second Semester

- GEOG 4510 (5510) - Theory of GIS I Credit: 3.
- GEOL 2500 - Geological Fundamentals Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- MATH 3070 - Statistical Methods I Credit: 3.

- PHYS 2020 - Algebra-based Physics II Credit: 4. or
- BIOL 3130 - General Ecology Credit: 4.

Total: 16

Junior Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.
- Directed Electives from Geography Concentration Credit: 3-4.
- MATH or Free Elective Credit: 3. ³

- Required Courses from Geography Concentration Credit: 3.

Total: 12-13

Second Semester

- Free Electives Credit: 6.
- Required Courses from Geography Concentration Credit: 6-10.

Total: 12-16

Senior Year

First Semester

- Free Electives Credit: 6-10.
- GEOG 4930 - Senior Thesis Credit: 3.
- Three directive electives from Geography Concentration Credit: 3-4.

Total: 12-17

Second Semester

- GEOG 4931 - Senior Thesis Credit: 3.
- Free Electives Credit: 2-4.
- Required course from Geography concentration Credit: 3-4.
- Three directive electives from Geography Concentration Credit: 6-7.

Total: 14-18

Note:

¹This course not included in 120-hour curriculum.

²MATH 1130, MATH 1730 or MATH 1910

³If MATH 1130 was taken, then take MATH 1720; otherwise take a free elective.

Geography Concentration Required Courses (19 hours)

- GEOG 1012 - Cultural Geography Credit: 3.
- GEOG 1130 - Geography of Natural Hazards Credit: 3.
- GEOG 2100 - Introduction to Meteorology Credit: 4.
- GEOG 3200 - Water Resources Credit: 3.
- GEOG 4210 (5210) - Cartography Credit: 3.
- GEOG 4650 (5650) - Environmental Applications of GIS Credit: 3.
- Geography Concentration Directed Electives, any four of the following courses (12-14 hours)
 - GEOG 2010 World Regional Geography (RODP) Credit 3.
 - GEOG 1100 - Global Climate Change Credit: 3.
 - GEOG 1035 - World Regional Geography I Credit: 3.
 - GEOL 2000 - Earth Evolution and Life History Credit: 3.
 - GEOG 3710 Geography of the U.S. (RODP) Credit 3.
 - GEOG 4150 (5150) - Geomorphology Credit: 4.
 - GEOG 4410 (5410) - Remote Sensing Credit: 3.
 - GEOG 4511 (5511) - Theory of GIS II Credit: 3.
 - GEOG 4711 (5711) - Hydrogeology Credit: 4.

- GEOG 4850 (5850) - Advanced GIS Credit: 3.

**Geosciences, Geology Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- GEOL 1020 - Field Experiences in the Geosciences Credit: 1.¹

- GEOL 1040 - Physical Geology Credit: 4.
- HIST 2010 - Early United States History Credit: 3.
- MATH Credit: 3-5.²

Total: 17-19

Second Semester

- CHEM 1120 - General Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- GEOL 1045 - Earth Environment, Resources and Society Credit: 4.
- HIST 2020 - Modern United States History Credit: 3.

Total: 14

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3.
- or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.
- MATH 3070 - Statistical Methods I Credit: 3.

- PHYS 2010 - Algebra-based Physics I Credit: 4. or
- BIOL 1020 - Diversity of Life Credit: 4.

- One Required Course from Geology Concentration Credit: 3-4.

Total: 16-17

Second Semester

- GEOG 4510 (5510) - Theory of GIS I Credit: 3.
- GEOL 2500 - Geological Fundamentals Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.

- PHYS 2020 - Algebra-based Physics II Credit: 4. or
- BIOL 3130 - General Ecology Credit: 4.

Total: 13

Junior Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.
- Required course from Geology concentration Credit: 3-4.
- Directed electives from Geology concentration Credit: 3-4.

- MATH or free elective Credit: 3.³
- Social/Behavioral Science Elective Credit: 3.

Total: 15-17

Second Semester

- Directed electives from Geology concentration Credit: 4.
- Required courses from Geology concentration Credit: 8.
- Social/Behavioral Science Elective Credit: 3.

Total: 15

Senior Year

First Semester

- Directed Electives from Geology Concentration Credit: 3-4.
- Free Electives Credit: 7-9.
- GEOL 4930 - Senior Thesis Credit: 3.

Total: 13-16

Second Semester

- Free Electives Credit: 10-13.
- GEOL 4931 - Senior Thesis Credit: 3.

Total: 13-16

Note:

¹This course not included in 120-hour curriculum.

²MATH 1130, MATH 1730 or MATH 1910

³If MATH 1130 was taken, then take MATH 1720; otherwise take a free elective.

Geology Concentration Required Courses (15-16 hours)

- GEOL 2000 - Earth Evolution and Life History Credit: 3.
- GEOL 3110 - Principles of Mineralogy and Petrology Credit: 4.
- GEOL 3230 - Structural Geology and Tectonics Credit: 4.
- GEOL 3830 - Field Geology Credit: 4.
- GEOL 4110 - Sedimentation and Stratigraphy Credit: 4.

Geology Concentration Directed Electives, any three of the following courses (9-12 hours)

- GEOG 1100 - Global Climate Change Credit: 3.
- GEOL 3120 - Mineralogy Credit: 4.
- GEOL 3350 - Paleobiology Credit: 3.
- GEOL 3410 - Paleontology Credit: 4.
- GEOL 4150 (5150) - Geomorphology Credit: 4.
- GEOL 4200 - Geological Exploration Techniques Credit: 4.
- GEOL 4210 - Advanced Historical Geology Credit: 3.
- GEOL 4610 - Optical Mineralogy and Petrography Credit: 4.
- GEOL 4711 (5711) - Hydrogeology Credit: 4.

Department of General and Basic Engineering

Curriculum

Freshman Year

- CHEM 1110 - General Chemistry I Credit: 4. ¹
 - CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
 - ENGR 1020 - Connections to Engineering and Technology Credit: 1. ²
 - ENGR 1110 - Engineering Graphics Credit: 2. ¹
 - ENGR 1120 - Programming for Engineers Credit: 2. ¹
 - ENGL 1010 - English Composition I Credit: 3.
 - ENGL 1020 - English Composition II Credit: 3.
 - MATH 1910 - Calculus I Credit: 4.
 - MATH 1920 - Calculus II Credit: 4.
 - Humanities/Fine Arts Electives and/or Social/Behavioral Science Electives Credit: 6
 - PHYS 2110 - Calculus-based Physics I Credit: 4. ¹
- Total: 33-35

Notes:

¹Students should consult with their advisor prior to taking ENGR 1110, ENGR 1120, CSC 1300, or PHYS 2110 to ensure the courses are applicable to the Engineering disciplines in which the student has potential interest.

²This course not included in 128-hour curriculum.

General Engineering, Joint TTU-ETSU B.S.E. (Leading to the Bachelor of Science in Engineering Degree)

Freshman Year

- CHEM 1110 - General Chemistry I Credit: 4.
 - CHEM 1120 - General Chemistry II Credit: 4.
 - ENGL 1010 - English Composition I Credit: 3.
 - ENGL 1020 - English Composition II Credit: 3.
 - Humanities/Fine Arts Electives Credit: 6.
 - MATH 1910 - Calculus I Credit: 4.
 - MATH 1920 - Calculus II Credit: 4.
 - ENGR 1020 - Connections to Engineering and Technology Credit: 1.
 - ENGR 1110 - Engineering Graphics Credit: 2.
 - ENGR 1120 - Programming for Engineers Credit: 2.
- Total: 33

Sophomore Year

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.
- PHYS 2110 - Calculus-based Physics I Credit: 4.
- PHYS 2120 - Calculus-based Physics II Credit: 4.
- COMM 2025 - Fundamentals of Communication Credit: 3.
- CEE 2110 - Statics Credit: 3.

- ENGR 3710 - Principles of Engineering Economy Credit: 2.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.
- MATH 2110 - Calculus III Credit: 4.
- MATH 2120 - Differential Equations Credit: 3.
- ME 2330 - Dynamics Credit: 3.

Total: 32

Junior Year

- Social/Behavioral Sciences Electives Credit: 6.
 - CEE 3110 - Mechanics of Materials Credit: 3.
 - ENGR 2810 - Electrical Engineering Fundamentals I Credit: 3.
 - ENGR 2820 - Electrical Engineering Fundamentals II Credit: 3.
 - ENGR 2821 - Electrical Engineering Fundamentals Lab Credit: 1.
 - ENGR 3120 - Solid Modeling Credit: 3.
 - ENGR 3720 - Engineering Statistics Credit: 2.
 - ME 3010 - Materials and Processes in Manufacturing Credit: 3.
 - ME 3023 - Measurements in Mechanical Systems Credit: 3.
 - ME 3210 - Thermodynamics I Credit: 3.
 - ME 3720 - Fluid Mechanics Credit: 3.
- Total: 33

Senior Year

- ENGR 3020 - Numerical Methods Credit: 3.
- ENGR 4510 - Engineering Management Credit: 3.
- ENGR 4900 - Engineering Design, Professionalism, and Ethics Credit: 3.
- ENGR 4950 - Senior Design I Credit: 3.
- ENGR 4960 - Senior Design II Credit: 3.
- Technical Electives¹ Credit: 12.
- Elective Credit: 3.

Total: 30

Note:

¹ Technical Electives

- ENGR 4500 - Reliability and Quality Engineering
- ENTC 4037 - Quality Assurance I
- ENTC 4060 - Project Scheduling
- MGMT 3000 - Organizational Behavior and Management
- MGMT 3100 - Production/Operations Management
- MGMT 4617 - Small Business Management
- ECE 3300 - Electronics I
- ME 3610 - Dynamics of Machinery
- ME 3710 - Heat Transfer
- ME 4010 - Machine Design

Department of Chemical Engineering

Chemical Engineering, B.S.CH.E (Leading to the Bachelor of Science in Chemical Engineering Degree)

Curriculum

Freshman Year

First Semester

- CHE 1010 - Introduction to Chemical Engineering Credit: 1²
- CHEM 1110 - General Chemistry I Credit: 4.
- ENGR 1120 - Programming for Engineers Credit: 2. ¹
- ENGL 1010 - English Composition I Credit: 3.
- MATH 1910 - Calculus I Credit: 4.

Total: 13

Second Semester

- CHE 1020 - Processes, Products and Ethics Credit: 1.
- CHEM 1120 - General Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- MATH 1920 - Calculus II Credit: 4.
- Humanities/Fine Arts Elective Credit: 3.

Total: 15

Sophomore Year

First Semester

- CHE 2015 - Introduction to Chemical and Biological Process Analysis and Scaling I Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3.
- or
- ENGL 2235 - Topics in British Literature Credit: 3. or
 - ENGL 2330 - Topics in World Literature Credit: 3.

- MATH 2110 - Calculus III Credit: 4.
- PHYS 2110 - Calculus-based Physics I Credit: 4.
- Social/Behavioral Science Elective Credit: 3.

Total: 17

Second Semester

- CHE 2020 - Introduction to Chemical and Biological Process Analysis and Scaling II Credit: 3.
- CHE 3730 - Chemical Engineering Operations Credit: 3.
- MATH 2120 - Differential Equations Credit: 3.
- PHYS 2120 - Calculus-based Physics II Credit: 4.

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

Total: 16

Junior Year

See note ³

First Semester

- CHE 3010 - Thermodynamics of Chemical Processes Credit: 3.
- CHE 3111 - Transfer Science I: Conduction, Radiation and Diffusion Credit: 4.
- CHEM 3010 - Organic Chemistry I Credit: 4.
- Humanities/Fine Arts Elective Credit: 3.
- Technical Elective Credit: 3.⁴

Total: 17

Second Semester

- CHE 3021 - Separations and Solution Thermodynamics Credit: 4.
- CHE 3121 - Transfer Science II: Fluid Mechanics Credit: 4.
- CHEM 3020 - Organic Chemistry II Credit: 4.
- Social/Behavioral Science Elective Credit: 3.
- Technical Elective Credit: 3.⁴

Total: 18

Senior Year

First Semester

- CHE 4131 (5131) - Transfer Science III: Diffusion and Diffusive-Convective Mass Transfer Credit: 4.
- CHE 4210 (5210) - Chemical Reaction Engineering Credit: 4.
- CHE 4410 - Process Design I Credit: 3.
- CHEM 3510 - Physical Chemistry I Credit: 4.

Total: 15

Second Semester

- CHE 4240 - Chemical Engineering Capstone Project Credit: 1.
- CHE 4420 - Process Design II Credit: 3.
- CHE 4540 - Process Dynamics and Control Credit: 3.
- CHEM 3520 - Physical Chemistry II Credit: 4.
- CHE Technical Elective Credit: 6.⁵

Total: 17

Senior Year (BS/MS Fast Track)

See note ⁶

- CHE 4131 (5131) - Transfer Science III: Diffusion and Diffusive-Convective Mass Transfer Credit: 4.
- CHE 4210 (5210) - Chemical Reaction Engineering Credit: 4.
- CHE 4240 - Chemical Engineering Capstone Project Credit: 1.
- CHE 4410 - Process Design I Credit: 3.
- CHE 4420 - Process Design II Credit: 3.
- CHE 4540 - Process Dynamics and Control Credit: 3.
- CHE Technical Electives Credit 6. ⁵
- CHE 4911 - Professionalism and Ethics in Chemical Engineering—BS/MS Fast Track Credit: 1. ⁷

- CHE 4510 (5510) - Applied Mathematics in Chemical Engineering Credit: 3. (5510 only) and
- MS Elective Credit 3. ⁸

- CHEM 3510 - Physical Chemistry I Credit: 4.

- CHEM 3520 - Physical Chemistry II Credit: 4.

Total: 39

Fifth Year (MS Program)

See note ⁸

Note:

¹ ENGR 1120 must be MATLAB.

² This course not included in 128-hour curriculum.

³ Students must apply to the CHE Fast-Track MS program by the end of their second Junior term.

⁴ Six hours of Technical Electives can be from any of the following courses:

- Any College of Engineering course at the 3000 or 4000 level.
- Any BIOL/CHEM/MATH/PHYS at the 3000 or 4000 level.
- Any course with the prior approval of the ChE Undergraduate Program Coordinator.

⁵ Six hours of ChE Technical Electives must come from two of the following courses:

- CHE 4245 - Clinical Immersion
- CHE 4330 (5330) - Polymer Engineering
- CHE 4335 - Fuel Cells
- CHE 4440 - Protein Engineering
- CHE 4661 (5661) - Transport in Biochemical and Biological Processes
- CHE 4990 - Undergraduate Research

⁶ Students enrolled in the Fast-Track BS/MS program must complete all requirements for both the BS and MS degrees as outlined in the Undergraduate and Graduate Catalogs, respectively. Students must meet all admission requirements to Graduate program.

⁷ Fast-Track ChE BS/MS students will register for CHE 4911 in which graduate research topics will be discussed.

⁸ Additional details to complete the BS/MS Fast-Track program are shown in the Graduate Catalog and are available in the Department of Chemical Engineering Office.

**Chemical Engineering, Bio-Molecular Engineering Concentration, B.S.CH.E.
(Leading to the Bachelor of Science in Chemical Engineering Degree)**

Curriculum

Freshman Year

First Semester

- CHE 1010 - Introduction to Chemical Engineering Credit: 1 ²

- CHEM 1110 - General Chemistry I Credit: 4.

- ENGL 1010 - English Composition I Credit: 3.

- ENGR 1120 - Programming for Engineers Credit: 2. ¹

- MATH 1910 - Calculus I Credit: 4.

Total: 14

Second Semester

- BIOL 1113 - General Biology I Credit: 4.

- CHE 1020 - Processes, Products and Ethics Credit: 1.

- CHEM 1120 - General Chemistry II Credit: 4.

- ENGL 1020 - English Composition II Credit: 3.

- MATH 1920 - Calculus II Credit: 4.

Total: 16

Sophomore Year

First Semester

- CHE 2015 - Introduction to Chemical and Biological Process Analysis and Scaling I Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.

- MATH 2110 - Calculus III Credit: 4.

- PHYS 2109 - Calculus-based Physics I Credit: 3.

- Social/Behavioral Science Elective Credit: 3.

Total: 16

Second Semester

- CHE 2020 - Introduction to Chemical and Biological Process Analysis and Scaling II Credit: 3.

- CHE 3730 - Chemical Engineering Operations Credit: 3.

- MATH 2120 - Differential Equations Credit: 3.

- PHYS 2119 - Calculus-based Physics II Credit: 3.

- COMM 2025 - Fundamentals of Communication Credit: 3. or

- PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or

- ENGL 2330 - Topics in World Literature Credit: 3.

Total: 18

Junior Year

See note ²

First Semester

- BIOL 3200 - General Microbiology Credit: 4. or

- BIOL 3230 - Health Science Microbiology Credit: 4.

- CHE 3010 - Thermodynamics of Chemical Processes Credit: 3.

- CHE 3111 - Transfer Science I: Conduction, Radiation and Diffusion Credit: 4.

- CHEM 3010 - Organic Chemistry I Credit: 4.

- CHEM 3510 - Physical Chemistry I Credit: 4.

Total: 19

Second Semester

- BIOL 3140 - Cellular Biology Credit: 4.
- CHE 3021 - Separations and Solution Thermodynamics Credit: 4.
- CHE 3121 - Transfer Science II: Fluid Mechanics Credit: 4.
- CHEM 3020 - Organic Chemistry II Credit: 4.

Total: 16

Senior Year

First Semester

- CHE 4131 (5131) - Transfer Science III: Diffusion and Diffusive-Convective Mass Transfer Credit: 4.
- CHE 4210 (5210) - Chemical Reaction Engineering Credit: 4.
- CHE 4410 - Process Design I Credit: 3.
- CHEM 4610 (5610) - General Biochemistry I Credit: 3.

Total: 14

Second Semester

- CHE 4240 - Chemical Engineering Capstone Project Credit: 1.
- CHE 4420 - Process Design II Credit: 3.
- CHE 4540 - Process Dynamics and Control Credit: 3.
- CHE 4661 (5661) - Transport in Biochemical and Biological Processes Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

Total: 16

Note:

¹ Programming must be MATLAB.

² This course not included in 128-hour curriculum.

³ Students interested in the ChE Fast-Track MS program should apply by the end of their second junior term.

Department of Electrical and Computer Engineering

**Bachelor of Science in Computer Engineering
Computer Engineering, B.S.CMP.E.
(Leading to the Bachelor of Science in Computer
Engineering Degree)**

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH 1910 - Calculus I Credit: 4.
- CHEM 1110 - General Chemistry I Credit: 4.
- ECE 1020 - Connections to Electrical and Computer Engineering Credit: 1. ¹
- Social/Behavioral Science Elective Credit: 3².

Total: 15

Second Semester

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.

- ENGL 1020 - English Composition II Credit: 3.
 - MATH 1920 - Calculus II Credit: 4.
 - MATH 2010 - Introduction to Linear Algebra Credit: 3.
- Total: 14

Sophomore Year

First Semester

- CSC 1310 - Data Structures and Algorithms Credit: 4.
- ECE 2010 - Electric Circuits I Credit: 3.
- ECE 2011 - Electrical Engineering Lab I Credit: 1.

- ENGL 2130 - Topics in American Literature Credit: 3.
- or

- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- MATH 2120 - Differential Equations Credit: 3.
- PHYS 2110 - Calculus-based Physics I Credit: 4.

Total: 18

Second Semester

- CSC 2400 - Design of Algorithms Credit: 3.
- ECE 2001 - Computer-Aided Engineering in ECE Credit: 1.
- ECE 2020 - Electric Circuits II Credit: 3.
- ECE 2110 - Introduction to Digital Systems Credit: 3.
- MATH 2110 - Calculus III Credit: 4.
- PHYS 2120 - Calculus-based Physics II Credit: 4.

Total: 18

Junior Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- CSC 2500 - Unix Lab Credit: 1.
- ECE 3010 - Signals and Systems Credit: 3.
- ECE 3060 - Electrical Engineering Lab II Credit: 1.
- ECE 3130 - Microcomputer Systems Credit: 4.
- ECE 3160 - Digital Systems Lab Credit: 1.
- ECE 3300 - Electronics I Credit: 3.

Total: 16

Second Semester

- Humanities Fine Arts Elective Credit: 3.²
- ECE 3020 - Discrete-Time Signals and Systems Credit: 3.
- ECE 3920 - Professional Issues in Electrical and Computer Engineering Credit: 1.
- ECE 4140 - Embedded System Design Credit: 3.
- MATH 3470 - Introductory Probability and Statistics Credit: 3.
- CSC 4200 (5200) - Computer Networks Credit: 3.

Total: 16

Senior Year

First Semester

- Social/Behavioral Science Elective Credit: 3.²
 - ECE 4961 - Capstone Design I Credit: 3.
 - ECE 4110 (5110) - Digital System Design Credit: 3.
 - CS Elective Credit: 3.³
 - EE Elective Credit: 3.³
- Total: 15
Second Semester
- Humanities/Fine Arts Elective Credit: 3.²
 - CSC 4100 (5100) - Operating Systems Credit: 3.
 - ECE 4120 (5120) - Fundamentals of Computer Design Credit: 3.
 - ECE 4971 - Capstone Design II Credit: 3.
 - CmpE Elective Credit: 5.³
- Total: 17
Note:

¹This course is not included in the 128-hour curriculum.

²Select from the University approved list.

³Select from the ECE Department approved list.

**Bachelor of Science in Electrical Engineering
Electrical Engineering, B.S.E.E.
(Leading to the Bachelor of Science in Electrical
Engineering Degree)**

Curriculum

Freshman Year

First Semester

- ECE 1020 - Connections to Electrical and Computer Engineering Credit: 1. ¹
- ENGL 1010 - English Composition I Credit: 3.
- CHEM 1110 - General Chemistry I Credit: 4.
- MATH 1910 - Calculus I Credit: 4.
- Social/Behavioral Science Elective Credit: 3.²

Total: 15

Second Semester

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- MATH 1920 - Calculus II Credit: 4.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.

Total: 14

Sophomore Year

First Semester

- ECE 2010 - Electric Circuits I Credit: 3.
- ECE 2011 - Electrical Engineering Lab I Credit: 1.

- ENGL 2130 - Topics in American Literature Credit: 3.
- or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- MATH 2120 - Differential Equations Credit: 3.
- PHYS 2110 - Calculus-based Physics I Credit: 4.

- Social/Behavioral Science Elective Credit: 3.²
- Total: 17
Second Semester
- COMM 2025 - Fundamentals of Communication Credit: 3. or
 - PC 2500 - Communicating in the Professions Credit: 3.

- ECE 2001 - Computer-Aided Engineering in ECE Credit: 1.
- ECE 2020 - Electric Circuits II Credit: 3.
- ECE 2110 - Introduction to Digital Systems Credit: 3.
- MATH 2110 - Calculus III Credit: 4.
- PHYS 2120 - Calculus-based Physics II Credit: 4.

Total: 18

Junior Year

First Semester

- ECE 3010 - Signals and Systems Credit: 3.
- ECE 3060 - Electrical Engineering Lab II Credit: 1.
- ECE 3130 - Microcomputer Systems Credit: 4.
- ECE 3300 - Electronics I Credit: 3.
- ECE 3510 - Electromagnetic Fields I Credit: 3.
- MATH 3470 - Introductory Probability and Statistics Credit: 3.

Total: 17

Second Semester

- ECE 3020 - Discrete-Time Signals and Systems Credit: 3.
- ECE 3920 - Professional Issues in Electrical and Computer Engineering Credit: 1.
- EE Lab Elective Credit: 1.³
- EE Breadth Elective Credit: 9.³
- EE Elective Credit: 3.³

Total: 17

Senior Year

First Semester

- Humanities/Fine Arts Elective Credit: 3.²
- ECE 4961 - Capstone Design I Credit: 3.
- EE Depth Elective Credit: 3.³
- EE Senior Elective Credit: 3.³
- EE Lab Elective Credit: 1.³
- Career Electives Credit: 3.³

Total: 16

Second Semester

- Humanities/Fine Arts Elective Credit: 3.²
- ECE 4971 - Capstone Design II Credit: 3.
- EE Depth Elective Credit: 3.³
- EE Elective Credit: 3.³
- Career Elective Credit: 3.³

Total: 15

Note:

¹This course is not included in the 128-hour curriculum.

²Select from University approved list.

³Select from ECE Department approved list.

**Electrical Engineering, Mechatronics Concentration, B.S.E.E.
(Leading to the Bachelor of Science in Electrical Engineering Degree)**

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ECE 1020 - Connections to Electrical and Computer Engineering Credit: 1. ¹
- ENGL 1010 - English Composition I Credit: 3.
- MATH 1910 - Calculus I Credit: 4.
- Social/Behavioral Science Elective Credit: 3.²

Total: 15

Second Semester

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- ENGR 1110 - Engineering Graphics Credit: 2.
- MATH 1920 - Calculus II Credit: 4.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.

Total: 16

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- ECE 2010 - Electric Circuits I Credit: 3.
- ECE 2011 - Electrical Engineering Lab I Credit: 1.
- MATH 2120 - Differential Equations Credit: 3.
- PHYS 2110 - Calculus-based Physics I Credit: 4.

Total: 17

Second Semester

- CEE 2110 - Statics Credit: 3.
- ECE 2001 - Computer-Aided Engineering in ECE Credit: 1.
- ECE 2020 - Electric Circuits II Credit: 3.
- ECE 2110 - Introduction to Digital Systems Credit: 3.
- MATH 2110 - Calculus III Credit: 4.
- PHYS 2120 - Calculus-based Physics II Credit: 4.

Total: 18

Junior Year

First Semester

- ECE 3010 - Signals and Systems Credit: 3.
- ECE 3060 - Electrical Engineering Lab II Credit: 1.

- ECE 3130 - Microcomputer Systems Credit: 4.
- ECE 3160 - Digital Systems Lab Credit: 1.
- ECE 3300 - Electronics I Credit: 3.
- ECE 3510 - Electromagnetic Fields I Credit: 3.
- ME 2330 - Dynamics Credit: 3.

Total: 18

Second Semester

- ECE 3020 - Discrete-Time Signals and Systems Credit: 3.
- ECE 3210 - Control System Analysis Credit: 3.
- ECE 3260 - Control System Lab Credit: 1.
- ECE 3270 - Programmable Logic Controller Lab Credit: 1.
- ECE 3610 - Introduction to Power Systems Credit: 3.
- ECE 3920 - Professional Issues in Electrical and Computer Engineering Credit: 1.
- ECE 4140 - Embedded System Design Credit: 3.
- ME 3610 - Dynamics of Machinery Credit: 3.

Total: 18

Senior Year

First Semester

- ECE 4210 (5210) - Control System Design Credit: 3.
- ECE 4961 - Capstone Design I Credit: 3.
- MATH 3470 - Introductory Probability and Statistics Credit: 3.
- ME 4140 (5140) - Introduction to Robotics and Intelligent Machines Engineering Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.²

Total: 15

Second Semester

- Social/Behavioral Science Elective Credit: 3.²
- Humanities/Fine Arts Elective Credit: 3.²
- ECE 4971 - Capstone Design II Credit: 3.
- EE Senior Elective Credit: 3.³

Total: 12

Notes:

¹This course is not included in 128-hour curriculum.

²Select from University approved list.

³Select from ECE Department approved list.

**Electrical Engineering, Vehicle Engineering Concentration, B.S.E.E.
(Leading to the Bachelor of Science in Electrical Engineering Degree)**

Curriculum

Freshman Year

- ENGL 1010 - English Composition I Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- MATH 1910 - Calculus I Credit: 4.
- MATH 1920 - Calculus II Credit: 4.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.
- CHEM 1110 - General Chemistry I Credit: 4.

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
- Social/Behavioral Science Elective Credit: 3².
- ECE 1020 - Connections to Electrical and Computer Engineering Credit: 1. ¹

Total: 28

Sophomore Year

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- Social/Behavioral Science Elective Credit: 3².
- ECE 2001 - Computer-Aided Engineering in ECE Credit: 1.
- MATH 2110 - Calculus III Credit: 4.
- MATH 2120 - Differential Equations Credit: 3.
- PHYS 2110 - Calculus-based Physics I Credit: 4.
- PHYS 2120 - Calculus-based Physics II Credit: 4.
- ECE 2010 - Electric Circuits I Credit: 3.
- ECE 2011 - Electrical Engineering Lab I Credit: 1.
- ECE 2020 - Electric Circuits II Credit: 3.
- ECE 2110 - Introduction to Digital Systems Credit: 3.

Total: 35

Junior Year

- ECE 3010 - Signals and Systems Credit: 3.
- ECE 3020 - Discrete-Time Signals and Systems Credit: 3.
- ECE 3060 - Electrical Engineering Lab II Credit: 1.
- ECE 3130 - Microcomputer Systems Credit: 4.
- ECE 3300 - Electronics I Credit: 3.
- ECE 3510 - Electromagnetic Fields I Credit: 3.
- ECE 3920 - Professional Issues in Electrical and Computer Engineering Credit: 1.
- EE Breadth Electives³ Credit: 6.
- EE Lab Elective³ Credit: 1.
- MATH 3470 - Introductory Probability and Statistics Credit: 3.
- VE 3400 - Introduction to Automotive Systems Credit: 3.
- VE 3500 - Sensors, Transducers and Instrumentation Credit: 3.

Total: 34

Senior Year

- VE 4100 - Senior Design Project I Credit: 3.
- VE 4200 - Senior Design Project II Credit: 3.
- VE 4500 - Reliability and Quality Engineering Credit: 3.
- EE Vehicle Elective³ Credit: 6.

- EE Breadth Elective³ Credit: 6.
- EE Senior Elective³ Credit: 3.
- EE Lab Elective³ Credit: 1.
- Humanities/Fine Arts Electives ² Credit: 6.

Total: 31

Note:

¹This course is not included in the 128-hour curriculum.

²Select from University approved list.

³Select from ECE Department approved list.

Department of Economics, Finance and Marketing

International Business & Cultures, B.S.

(Leading to the Bachelor of Science Degree)

This joint-degree program, shared by the College of Business and the College of Arts and Sciences, is designed to prepare American and international students for the arena of international relations and trade. Track 1, designed for American students, emphasizes competence in basic and international business, a high level of proficiency in foreign languages, and solidly grounded knowledge of foreign cultures and the world business community. Track 2, designed for international students, offers specialized concentrations in American studies and aspects of American and international business cultures. The capstone course for both Tracks 1 and 2 is a domestic or international internship (IBC 4980). Track 1 students may also choose to spend a semester or year studying abroad in order to improve their foreign language proficiency and deepen their knowledge of foreign cultures.

Curriculum

Track I

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- Foreign Language 1010 Credit: 3.
- HIST 2310 - Early World History Credit: 3.
- MATH 1130 - College Algebra Credit: 3.
- Natural Science Credit: 4.
- UBUS 1020 - Success Skills for Business Studies Credit: 1.

Total: 17

Second Semester

- DS 2810 - Computer Applications in Business Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- Foreign Language 1020 Credit: 3.
- HIST 2320 - Modern World History Credit: 3.
- Natural Science Credit: 4.

Total: 16

Sophomore Year

First Semester

- ACCT 2110 - Principles of Accounting I Credit: 3.

- ECON 2010 - Principles of Microeconomics Credit: 3.
 - ENGL 2330 - Topics in World Literature Credit: 3.
 - Foreign Language 2010 Credit: 3.
 - HIST 2010 - Early United States History Credit: 3.
- Total: 15
Second Semester
- ACCT 2120 - Principles of Accounting II Credit: 3.
-
- COMM 2025 - Fundamentals of Communication Credit: 3. or
 - PC 2500 - Communicating in the Professions Credit: 3.

- ECON 2020 - Principles of Macroeconomics Credit: 3.
 - Foreign Language 2020 Credit: 3.
 - HIST 2020 - Modern United States History Credit: 3.
- Total: 15
Junior Year
First Semester
- BMGT 3510 - Management and Organization Behavior Credit: 3.
 - ECON 3610 - Business Statistics I Credit: 3.
 - Foreign Language 3010 Credit: 3.
 - MKT 3400 - Principles of Marketing Credit: 3.
- Total: 12
Second Semester
- BMGT 3600 - International Management Credit: 3.

- ECON 3320 - Money and Banking Credit: 3. or
 - ECON 3810 - Intermediate Microeconomics Credit: 3. or
 - ECON 3820 - Intermediate Macroeconomics Credit: 3.
-
- FIN 3210 - Principles of Managerial Finance Credit: 3.
 - Foreign Language 3020 Credit: 3.
 - World Studies Elective Credit: 3.¹

- Total: 15
Senior Year
First Semester
- BMGT 4930 (5930) - Business Strategy Credit: 3.
 - Business Elective Credit: 3.
 - ECON 4120 - Natural Resource Economics Credit: 3.
 - FIN 4910 - Multinational Financial Management Credit: 3.
 - Foreign Language 3200 Credit: 3.
- Total: 15
Second Semester
- ECON 4510 (5510) - International Trade and Finance Credit: 3.
 - Elective Credit: 0-3.
 - MKT 4100 - International Marketing Credit: 3.
 - IBC 4980 - Practicum Credit: 3-10.
 - World Studies Elective Credit: 3.¹
- Total: 15

Note:

¹ Students may choose from the following: ENGL 4720 (5720); FLST 2520 (3520); FREN 3510; GERM 3510 or GERM 3520; SPAN 3510 or SPAN 3550 or any upper level foreign language class not used for the foreign language requirement; GEOG 1012, GEOG 1130, GEOG 2010, GEOG 3200; HIST 4440-4449 (5440), HIST 4550 (5550), HIST 4560 (5560), HIST 4570 (5570), HIST 4620 (5620), HIST 4630, HIST 4640, HIST 4710, HIST 4730 (5730), HIST 4740 (5740), HIST 4750 (5750), HIST 4790-4799 (5790); POLS 4510, POLS 4960; SOC 2100, SOC 4090 (5090), COMM 3620.

Track 2

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- HIST 2310 - Early World History Credit: 3.
- MATH 1130 - College Algebra Credit: 3.
- Natural Science Credit: 4.
- UBUS 1020 - Success Skills for Business Studies Credit: 1. ¹

Total: 13

Second Semester

- ANTH 1100 - Introduction to Anthropology Credit: 3. or
- SOC 1010 - Introduction to Sociology Credit: 3.

- ENGL 1020 - English Composition II Credit: 3.
- DS 2810 - Computer Applications in Business Credit: 3.
- HIST 2320 - Modern World History Credit: 3.
- Natural Science Credit: 4.

Total: 16

Sophomore Year

First Semester

- ACCT 2110 - Principles of Accounting I Credit: 3.
- ECON 2010 - Principles of Microeconomics Credit: 3.
- ENGL 2130 - Topics in American Literature Credit: 3.
- HEC 1020 - Social and Professional Etiquette Credit: 1.

- HIST 2010 - Early United States History Credit: 3.
- POLS 1030 - American Government Credit: 3.

Total: 16

Second Semester

- ACCT 2120 - Principles of Accounting II Credit: 3.

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ECON 2020 - Principles of Macroeconomics Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.

- RELS 2010 - Introduction to Religious Studies Credit: 3. or

- SOC 2110 - Social Class and Inequality in America Credit: 3.

Total: 15

Junior Year

First Semester

- BMGT 3510 - Management and Organization Behavior Credit: 3.

- BMGT 3720 - Business Communication I Credit: 3.

- ECON 3610 - Business Statistics I Credit: 3.

- MKT 3400 - Principles of Marketing Credit: 3.

- POLS 3200 - American Political Thought Credit: 3.

Total: 15

Second Semester

- American Studies Elective Credit: 3.²

- BMGT 3600 - International Management Credit: 3.

- DS 3520 - Operations Management Credit: 3.

- ECON 3320 - Money and Banking Credit: 3. or

- ECON 3810 - Intermediate Microeconomics Credit: 3.

or

- ECON 3820 - Intermediate Macroeconomics Credit: 3.

- FIN 3210 - Principles of Managerial Finance Credit: 3.

Total: 15

Senior Year

First Semester

- American Studies Elective Credit: 3.²

- ECON 4310 (5310) - Labor Economics Credit: 3.

- ECON 4510 (5510) - International Trade and Finance Credit: 3.

- GEOG 1130 - Geography of Natural Hazards Credit: 3.

- LAW 2810 - Business Legal Environment and Ethics Credit: 3.

Total: 15

Second Semester

- American Studies Electives Credit: 6.²

- Elective Credit: 0-3.

- FIN 4910 - Multinational Financial Management Credit: 3.

- IBC 4980 - Practicum Credit: 3-10.

Total: 15

Note:

¹This course not included in 120-hour curriculum.

²Students may choose from the following: ENGL 4610 (5610), ENGL 4830 (5830); HIST 4010 (5010) HIST 4020 (5020), HIST 4030 (5030), HIST 4050 (5050), HIST 4060 (5060), HIST 4200 (5200), HIST 4210 (5210), HIST 4230-4239 (5230), HIST 4250 (5250), HIST 4330-4339 (5330), HIST 4360-4369 (5360), HIST 4380-4389; POLS 4210.

The following restrictions apply to both Track 1 and Track 2 IBAC majors:

- IBAC majors may not take business courses on a pass/fail basis.

- IBAC majors must take at least 50 percent of the total hours required for the degree in courses offered outside the College of Business.

• IBAC majors must earn at least 50 percent of the business hours required for the degree at Tennessee Technological University.

• IBAC majors must complete at least 50 percent of the upper-division business hours at Tennessee Technological University.

Bachelor of Science in Business Administration Economics, B.S.B.A (Leading to the Bachelor of Science in Business Administration Degree)

Basic Business

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.

- MATH 1130 - College Algebra Credit: 3.

- Natural Science Credit: 4.¹

- Elective Credit: 1.²

- DS 2810 - Computer Applications in Business Credit: 3. or

- Humanities/Fine Arts Elective Credit: 3.³

Total: 14

Second Semester

- ENGL 1020 - English Composition II Credit: 3.

- MATH 1830 - Applied Calculus Credit: 3.

- Natural Science Credit: 4.¹

- Elective Credit: 3.²

- DS 2810 - Computer Applications in Business Credit: 3. or

- Humanities/Fine Arts Elective Credit: 3.³

Total: 16

Sophomore Year

First Semester

- ACCT 2110 - Principles of Accounting I Credit: 3.

- ECON 2010 - Principles of Microeconomics Credit: 3.

- HIST 2010 - Early United States History Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or

- ENGL 2330 - Topics in World Literature Credit: 3.

- COMM 2025 - Fundamentals of Communication
Credit: 3. or
- PC 2500 - Communicating in the Professions Credit:
3.

Total: 15

Second Semester

- ACCT 2120 - Principles of Accounting II Credit: 3.
- ECON 2020 - Principles of Macroeconomics Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.³
- Elective Credit: 3.²

Total: 15

Note:

¹Select two courses from the following: ASTR 1010, ASTR 1020; BIOL 1010, BIOL 1020, BIOL 1123, BIOL 2310, BIOL 2010, BIOL 2020; CHEM 1010, CHEM 1020, CHEM 1110, CHEM 1120; GEOL 1040, GEOL 1045; PHYS 2010, PHYS 2020, PHYS 2110, PHYS 2120 .

²Elective courses are to be selected in consultation with the academic advisor. UBUS 1020 may not be required in some instances. MATH 1000 and READ 1010 does not count as credit toward BSBA degree completion, including as elective. See advisor.

³Select two courses from the University approved Humanities/Fine Arts list .

- BMGT 3720 - Business Communication I Credit: 3.
- ECON 4510 (5510) - International Trade and Finance
Credit: 3. or
- FIN 4910 - Multinational Financial Management
Credit: 3.
- MKT 3400 - Principles of Marketing Credit: 3.

Core: 15

¹Elective courses are to be selected in consultation with the academic advisor.

Finance, B.S.B.A.

Basic Business

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH 1130 - College Algebra Credit: 3.
- Natural Science Credit: 4.¹
- Elective Credit: 1.²

- DS 2810 - Computer Applications in Business Credit:
3. or

- Humanities/Fine Arts Elective Credit: 3.³

Total: 14

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- MATH 1830 - Applied Calculus Credit: 3.

Curriculum

Junior Year

First Semester

- BMGT 3510 - Management and Organization
Behavior Credit: 3.
- DS 3841 - Management Information Systems Credit:
3.
- ECON 3610 - Business Statistics I Credit: 3.
- ECON 3810 - Intermediate Microeconomics Credit: 3.

- LAW 2810 - Business Legal Environment and Ethics
Credit: 3. or

- ECON 3320 - Money and Banking Credit: 3.

Total: 15

Second Semester

- DS 3520 - Operations Management Credit: 3.
- DS 3620 - Business Analytics: Data Driven Decision
Making Credit: 3.
- ECON 3820 - Intermediate Macroeconomics Credit: 3.
- FIN 3210 - Principles of Managerial Finance Credit: 3.

- LAW 2810 - Business Legal Environment and Ethics
Credit: 3. or

- ECON 3320 - Money and Banking Credit: 3.

Total: 15

Senior Year

First Semester

- ECON Electives Credit: 6.
- BMGT 4930 (5930) - Business Strategy Credit: 3.
- Business Elective Credit: 3.¹
- ECON Electives Credit: 6.
- Elective Credit: 3.¹

Total: 15

Note:

(Leading to the Bachelor of Science in Business Administration Degree)

- Natural Science Credit: 4.¹
- Elective Credit: 3.²

- DS 2810 - Computer Applications in Business Credit:
3. or

- Humanities/Fine Arts Elective Credit: 3.³

Total: 16

Sophomore Year

First Semester

- ACCT 2110 - Principles of Accounting I Credit: 3.
- ECON 2010 - Principles of Microeconomics Credit: 3.
- HIST 2010 - Early United States History Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3.
or

- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

Total: 15

Second Semester

- ACCT 2120 - Principles of Accounting II Credit: 3.
- ECON 2020 - Principles of Macroeconomics Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.³
- Elective Credit: 3.²

Total: 15

Note:

¹Select two courses from the following: ASTR 1010, ASTR 1020; BIOL 1010, BIOL 1020, BIOL 1123, BIOL 2310, BIOL 2010, BIOL 2020; CHEM 1010, CHEM 1020, CHEM 1110, CHEM 1120; GEOL 1040, GEOL 1045; PHYS 2010, PHYS 2020, PHYS 2110, PHYS 2120 .

²Elective courses are to be selected in consultation with the academic advisor. UBUS 1020 may not be required in some instances. MATH 1000 and READ 1010 does not count as credit toward BSBA degree completion, including as elective. See advisor.

³Select two courses from the University approved Humanities/Fine Arts list .

Curriculum

Junior Year

First Semester

- BMGT 3510 - Management and Organization Behavior Credit: 3.
- DS 3841 - Management Information Systems Credit: 3.
- ECON 3610 - Business Statistics I Credit: 3.
- FIN 3210 - Principles of Managerial Finance Credit: 3.
- LAW 2810 - Business Legal Environment and Ethics Credit: 3.

Total: 15

Second Semester

- FIN 3220 - Intermediate Financial Management Credit: 3.
- FIN 3830 - Fundamentals of Investment Credit: 3.
- DS 3520 - Operations Management Credit: 3.
- DS 3620 - Business Analytics: Data Driven Decision Making Credit: 3.

- ECON 3320 - Money and Banking Credit: 3. or
- ECON 3810 - Intermediate Microeconomics Credit: 3. or
- ECON 3820 - Intermediate Macroeconomics Credit: 3.

Total: 15

Senior Year

First Semester

- BMGT 3720 - Business Communication I Credit: 3.
- FIN Elective Credit: 3.¹
- FIN 4230 - Advanced Financial Decision Analysis Credit: 3.

- FIN 4910 - Multinational Financial Management Credit: 3. or

- ECON 4510 (5510) - International Trade and Finance Credit: 3.

- MKT 3400 - Principles of Marketing Credit: 3.

Total: 15

Second Semester

- Business Elective Credit: 3.¹
- BMGT 4930 (5930) - Business Strategy Credit: 3.
- Elective Credit: 3.¹
- FIN Electives Credit: 6.¹

Total: 15

Total: 30

Note:

¹Elective courses are to be selected in consultation with the academic advisor.

Marketing, B.S.B.A.

(Leading to the Bachelor of Science in Business Administration degree)

Basic Business

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH 1130 - College Algebra Credit: 3.
- Natural Science Credit: 4.¹
- Elective Credit: 1.²

- DS 2810 - Computer Applications in Business Credit: 3. or

- Humanities/Fine Arts Elective Credit: 3.³

Total: 14

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- MATH 1830 - Applied Calculus Credit: 3.
- Natural Science Credit: 4.¹
- Elective Credit: 3.²

- DS 2810 - Computer Applications in Business Credit: 3. or

- Humanities/Fine Arts Elective Credit: 3.³

Total: 16

Sophomore Year

First Semester

- ACCT 2110 - Principles of Accounting I Credit: 3.
- ECON 2010 - Principles of Microeconomics Credit: 3.
- HIST 2010 - Early United States History Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3.
or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- COMM 2025 - Fundamentals of Communication
Credit: 3. or
- PC 2500 - Communicating in the Professions Credit:
3.

Total: 15

Second Semester

- ACCT 2120 - Principles of Accounting II Credit: 3.
- ECON 2020 - Principles of Macroeconomics Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.³
- Elective Credit: 3.²

Total: 15

Note:

¹Select two courses from the following: ASTR 1010, ASTR 1020; BIOL 1010, BIOL 1020, BIOL 1123, BIOL 2310, BIOL 2010, BIOL 2020; CHEM 1010, CHEM 1020, CHEM 1110, CHEM 1120; GEOL 1040, GEOL 1045; PHYS 2010, PHYS 2020, PHYS 2110, PHYS 2120 .

²Elective courses are to be selected in consultation with the academic advisor. UBUS 1020 may not be required in some instances. MATH 1000 and READ 1010 does not count as credit toward BSBA degree completion, including as elective. See advisor.

³Select two courses from the University approved Humanities/Fine Arts list .

Curriculum

¹Electives are to be selected in consultation with the academic advisor.

Department of English

English, Creative Writing Concentration, B.A. (Leading to the Bachelor of Arts Degree)

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- Foreign Language Credit: 3. ¹
- MATH Credit: 3.
- Natural Science Credit: 4.
- Social/Behavioral Sciences Elective Credit: 3.

Junior Year

First Semester

- BMGT 3510 - Management and Organization Behavior Credit: 3.
- DS 3841 - Management Information Systems Credit: 3.
- ECON 3610 - Business Statistics I Credit: 3.
- MKT 3400 - Principles of Marketing Credit: 3.

- ECON 3320 - Money and Banking Credit: 3. or
- ECON 3810 - Intermediate Microeconomics Credit: 3.
or
- ECON 3820 - Intermediate Macroeconomics Credit: 3.

Total: 15

Second Semester

- FIN 3210 - Principles of Managerial Finance Credit: 3.
- DS 3520 - Operations Management Credit: 3.
- DS 3620 - Business Analytics: Data Driven Decision Making Credit: 3.
- MKT Elective Credit: 3.¹
- Elective Credit: 3.¹

Total: 15

Senior Year

First Semester

- Business Elective Credit: 3.¹
- LAW 2810 - Business Legal Environment and Ethics Credit: 3.
- MKT 4620 (5620) - Marketing Research Credit: 3.
- MKT Elective Credit: 6.¹

Total: 15

Second Semester

- BMGT 3720 - Business Communication I Credit: 3.
- BMGT 4930 (5930) - Business Strategy Credit: 3.
- MKT 4730 (5730) - Marketing Strategy Credit: 3.
- MKT Electives Credit: 6.¹

Total: 15

Note:

- UNIV 1020 - First-Year Connections Credit: 1.

Total: 17

Second Semester

- COMM 2025 - Fundamentals of Communication
Credit: 3. or
- PC 2500 - Communicating in the Professions Credit:
3.

- ENGL 1020 - English Composition II Credit: 3.
- Foreign Language Credit: 3. ¹
- Humanities/Fine Arts Elective Credit: 3.
- Natural Science Credit: 4.

Total: 16

Sophomore Year

First Semester

- Elective Credit: 3.
- ENGL 2330 - Topics in World Literature Credit: 3.
- Foreign Language/Elective Credit: 3. ¹
- HIST 2010 - Early United States History Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Second Semester

- ENGL 3000 - Introduction to English Methods and Research Credit: 3.
- ENGL 3400 - Introduction to Creative Writing Credit: 3.
- ENGL 3810 - British Literature I Credit: 3.
- ENGL 3910 - American Literature I Credit: 3.
- Foreign Language/Elective Credit: 3. ¹

Total: 15

Junior Year

First Semester

- Elective Credit: 3.
- ENGL 3820 - British Literature II Credit: 3.
- English (approved courses) Credit: 6. ²
- HIST 2020 - Modern United States History Credit: 3.

Total: 15

Second Semester

- ENGL 3920 - American Literature II Credit: 3.
- ENGL 4121 (5121) - Shakespeare Credit: 3.
- English (approved courses) Credit: 6. ²
- Humanities/Fine Arts Elective Credit: 3.

Total: 15

Senior Year

First Semester

- Elective Credit: 3.
- English (approved courses) Credit: 12. ²

Total: 15

Second Semester

- Elective Credit: 3.
- ENGL 4995 - Senior Colloquium Credit: 3.
- English (approved courses) Credit: 6. ²

Total: 12

Note:

¹ English majors meet the foreign language requirement by making a C or better in a foreign language course at the 2020 level or higher excluding Country and People and the Global Studies courses. Students who have completed the foreign language requirement may take six credit hours of electives in any course at the 3000-level or above.

Students in the Creative Writing Concentration take ENGL 3400 plus 12 hours from the following courses: ENGL 4430 (5430), ENGL 4440 (5440), ENGL 4450 (5450), ENGL 4620 (5620). (ENGL 4430, ENGL 4440, and ENGL 4450 may be repeated for credit provided the content is different each time.)

Students choose courses from the list of approved ENGL courses as indicated below, for a total of 18 hours

² **Choose one from the British Literature Block:**

ENGL 4111 (5111), ENGL 4130 (5130), ENGL 4140 (5140), ENGL 4210 (5210), ENGL 4221 (5221), ENGL 4231 (5231), ENGL 4240 (5240)

Choose one from the American Literature Block:

ENGL 4310 (5310), ENGL 4320 (5321), ENGL 4330 (5330), ENGL 4340 (5340), ENGL 4830 (5830), ENGL 4712 (5712), ENGL 4713 (5713)

Choose one from the Language Block:

ENGL 4511 (5511), ENGL 4521 (5521), ENGL 4531 (5531), ENGL 4541 (5541), ENGL 4561 (5561)

The remaining 9 hours of upper-division ENGL courses must be taken from any ENGL courses 3000 or above EXCEPT core courses. The upper-division core courses are ENGL 3000, ENGL 3810, ENGL 3820, ENGL 3910, ENGL 3920, ENGL 4121 (5121), and ENGL 4995.

Students in the Creative Writing concentration can also have a concentration in Professional and Technical Communication by taking 21 elective hours in the following courses:

- PC 2500 Communicating in the Professions
- PC 3250 Professional Communication I
- PC 4850 (5850) Internship
- and 15 additional hours from the following:
- PC 3500 - Rhetoric and the Internet
- PC 3700 - Information Design in the Professions
- PC 3750 - Ethics in the Professions
- PC 4850 (5850) - Internship
- PC 4940 (5940) - Technical Editing
- PC 4970 (5970) Professional Communication II
- PC 4990 Business and Grant Proposal Writing

English, Literature Concentration, B.A. (Leading to the Bachelor of Arts Degree)

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- Foreign Language Credit: 3. ¹
- Mathematics Credit: 3.
- Natural Science Credit: 4.
- Social/Behavioral Sciences Elective Credit: 3.
- UNIV 1020 - First-Year Connections Credit: 1.

Total: 17

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or

- PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 1020 - English Composition II Credit: 3.
- Foreign Language Credit: 3. ¹
- Humanities/Fine Arts Elective Credit: 3.
- Natural Science Credit: 4.

Total: 16

Sophomore Year

First Semester

- Elective Credit: 3.
- ENGL 2330 - Topics in World Literature Credit: 3.
- Foreign Language/Elective Credit: 3. ¹
- HIST 2010 - Early United States History Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Second Semester

- Elective Credit: 3.
- ENGL 3000 - Introduction to English Methods and Research Credit: 3.
- ENGL 3810 - British Literature I Credit: 3.
- ENGL 3910 - American Literature I Credit: 3.
- Foreign Language/Elective Credit: 3. ¹

Total: 15

Junior Year

First Semester

- Electives Credit: 3.
- ENGL 3820 - British Literature II Credit: 3.
- English (approved courses) Credit: 6. ²
- HIST 2020 - Modern United States History Credit: 3.

Total: 15

Second Semester

- Electives Credit: 3.
- ENGL 3920 - American Literature II Credit: 3.
- ENGL 4121 (5121) - Shakespeare Credit: 3.
- English (approved courses) Credit: 3. ²
- Humanities/Fine Arts Elective Credit: 3.

Total: 15

Senior Year

First Semester

- Electives Credit: 3.
- English (approved courses) Credit: 12. ²

Total: 15

Second Semester

- Elective Credit: 3.
- ENGL 4995 - Senior Colloquium Credit: 3.
- English (approved courses) Credit: 6. ²

Total: 12

Note:

¹ English majors meet the foreign language requirement by making a C or better in a foreign language course at the 2020 level or higher excluding Country and People and the Global Studies courses. Students who have completed the foreign language requirement may take

six credit hours of electives in any course at the 3000-level or above.

Students choose courses from the list of approved ENGL courses as indicated below, for a total of 27 hours.

² **Approved ENGL courses, one from each block:**

British I: ENGL 4111 (5111), ENGL 4130 (5130), ENGL 4140 (5140)

British II: ENGL 4210 (5210), ENGL 4221 (5221), ENGL 4231 (5231), ENGL 4240 (5240)

American: ENGL 4310 (5310), ENGL 4320 (5321), ENGL 4330 (5330), ENGL 4340 (5340), ENGL 4712 (5712), ENGL 4713 (5713), ENGL 4830 (5830)

Language: ENGL 4511 (5511), ENGL 4521 (5521), ENGL 4531 (5531), ENGL 4541 (5541), ENGL 4561 (5561).

The remaining 12 hours of upper-division ENGL courses must be taken from any ENGL courses at the 3000-level or above EXCEPT core courses. The upper-division core courses are ENGL 3000, 3810, 3820, 3910, 3920, 4121, and 4995.

World Literature Option:

ENGL 4720 (5720) or ENGL 4751 (5751) (3 hrs.)

Foreign Language 3000-4000 (one composition and two literature courses, excluding country and people courses) (9 hrs.)

Students in the Literature Concentrations can also have a concentration in Professional Communication by taking 21 elective hours in the following courses:

Professional Communication Core (9 hours)

- PC 2500 Communicating in the Professions
- PC 3250 Professional Communication I
- PC 4850 (5850) Internship

15 Additional Credit Hours from the Following Courses

- PC 3500 - Rhetoric and the Internet
- PC 3700 Information Design in the Professions
- PC 3750 Ethics in the Professions
- PC 4850 (5850) Internship
- PC 4940 (5940) - Technical Editing
- PC 4970 (5970) Professional Communication II
- PC 4990 Business and Grant Proposal Writing

**English, Professional and Technical Communication Concentration, B.A.
(Leading to the Bachelor of Arts Degree)**

Curriculum

Freshman Year

First Semester

- Elective Credit: 3.
- ENGL 1010 - English Composition I Credit: 3.
- HIST 2010 - Early United States History Credit: 3.
- MATH Credit: 3.
- Natural Science Credit: 4.

- UNIV 1020 - First-Year Connections Credit: 1.

Total: 17

Second Semester

- Elective Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- Natural Science Credit: 4.
- PC 2500 - Communicating in the Professions Credit: 3.

Total: 16

Sophomore Year

First Semester

- ENGL 2330 - Topics in World Literature Credit: 3.
- PC 3250 - Professional Communication I Credit: 3.
- ENGL 3810 - British Literature I Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

- Electives Credit: 6.
- ENGL 3000 - Introduction to English Methods and Research Credit: 3.
- ENGL 3820 - British Literature II Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

Total: 15

Junior Year

First Semester

- ENGL 3910 - American Literature I Credit: 3.
- ENGL 4121 (5121) - Shakespeare Credit: 3.
- Foreign Language Elective Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- PC 4850 (5850) - Internship Credit: 3, 6, 9.

Total: 15

Second Semester

- Elective Credit: 3.
- ENGL 3920 - American Literature II Credit: 3.
- Foreign Language Credit: 3.

Choose either six or nine hours from the following courses:

- PC 3500 - Rhetoric and the Internet Credit: 3.
- PC 3700 - Information Design in the Professions Credit: 3.
- PC 3750 - Ethics in the Professions Credit: 3.
- PC 4850 (5850) - Internship Credit: 3, 6, 9. (Three or Six)

Total: 15

Senior Year

First Semester

- Elective Credit: 3.
- ENGL 4511 (5511) - Introduction to Descriptive Linguistics Credit: 3. or
- ENGL 4521 (5521) - History of the English Language Credit: 3. or

- ENGL 4531 (5531) - Grammar and Language Credit: 3.

- Foreign Language Credit: 3.

Choose either six hours from the following courses:

- PC 4940 (5940) - Technical Editing Credit: 3.
- PC 4970 (5970) - Professional Communication II Credit: 3.
- PC 4990 - Business and Grant Proposal Writing Credit: 3.
- PC 4850 (5850) - Internship Credit: 3, 6, 9. (Three or Six)

Total: 15

Second Semester

- Elective Credit: 3.
- ENGL 4995 - Senior Colloquium Credit: 3.
- Foreign Language Credit: 3.

Choose three hours from the following courses:

- PC 4940 (5940) - Technical Editing Credit: 3.
- PC 4970 (5970) - Professional Communication II Credit: 3.
- PC 4990 - Business and Grant Proposal Writing Credit: 3.
- PC 4850 (5850) - Internship Credit: 3, 6, 9.

Total: 12

Students may use their 21 elective hours to pursue the following optional options:

Corporate Culture

- BMGT 3510 - Management and Organization Behavior Credit: 3.
- BMGT 3630 - Human Resource Management Credit: 3.
- COMM 4420 - Advanced Organizational Communication Credit: 3.
- COMM 4430 (5430) - Advanced Interpersonal Communication Credit: 3.
- COMM 4630 (5630) - Persuasion Credit: 3.

Information Architecture

- COMM 3120 - Visual Communication/Rhetoric Credit: 3.
- WEBD 1500 - Introduction to Web Design Credit: 3.
- WEBD 2300 - Web Site Design: Dynamic Sites Credit: 3.

- WEBD 3500 - Rhetoric and the Internet Credit: 3. or
- PC 3500 - Rhetoric and the Internet Credit: 3.

Scientific and Technical Writing

- BIOL 3920 - Biological Communication Skills Credit: 3.
- PC 4940 (5940) - Technical Editing Credit: 3.
- Natural Science Credit 8.

Note:

English majors meet the foreign language requirement by making a C or better in a foreign language course at the 2020 level or higher excluding Country and People courses and the Global Studies courses.

English, Rhetoric and Language Concentration, B.A. (Leading to the Bachelor of Arts Degree)

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- Foreign Language Credit: 3. ¹
- MATH Credit: 3.
- Natural Science Credit: 4.
- Social/Behavioral Science Elective Credit: 3.
- UNIV 1020 - First-Year Connections Credit: 1.

Total: 17

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 1020 - English Composition II Credit: 3.
- Foreign Language Credit: 3. ¹
- Humanities/Fine Arts Elective Credit: 3.
- Natural Science Credit: 4.

Total: 16

Sophomore Year

First Semester

- Elective Credit: 3.
- ENGL 2330 - Topics in World Literature Credit: 3.
- Foreign Language/Elective Credit: 3. ¹
- HIST 2010 - Early United States History Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Second Semester

- Elective Credit: 3.
- ENGL 3000 - Introduction to English Methods and Research Credit: 3.
- ENGL 3810 - British Literature I Credit: 3.
- ENGL 3910 - American Literature I Credit: 3.
- Foreign Language/Elective Credit: 3. ¹

Total: 15

Junior Year

First Semester

- Elective Credit: 3.
- ENGL 3820 - British Literature II Credit: 3.
- ENGL from blocks or courses at or above 3000-level Credit: 6. ²
- HIST 2020 - Modern United States History Credit: 3.

Total: 15

Second Semester

- ENGL 3920 - American Literature II Credit: 3.
- ENGL 4121 (5121) - Shakespeare Credit: 3.
- ENGL from blocks or courses at or above 3000-level Credit: 6. ²
- Humanities/Fine Arts Elective Credit: 3.

Total: 15

Senior Year

First Semester

- Elective Credit: 3.
- ENGL from blocks or courses at or above 3000-level Credit: 12. ²

Total: 15

Second Semester

- Elective Credit: 3.
- ENGL 4995 - Senior Colloquium Credit: 3.
- ENGL from blocks or courses at or above 3000-level Credit: 6. ²

Total: 12

Note:

¹ English majors meet the foreign language requirement by making a C or better in a foreign language course at the 2020 level or higher excluding Country and People and the Global Studies courses. Students who have completed the foreign language requirement should take six credit hours of electives in any course at the 3000-level or higher.

² Students choose courses from Blocks or courses at or above 3000-level as indicated below, for a total of 30 hours.

Language and Rhetoric Block (choose any five courses): ENGL 4411 (5411), ENGL 4421 (5421), ENGL 4551 (5451), ENGL 4511 (5511), ENGL 4521 (5521), ENGL 4531 (5531), ENGL 4541 (5541), ENGL 4561 (5561)

British Literature Block (choose one): ENGL 4111 (5111), ENGL 4130 (5130), ENGL 4140 (5140), ENGL 4210 (5210), ENGL 4221 (5221), ENGL 4231 (5231), ENGL 4240 (5240)

American Literature (choose one): ENGL 4310 (5310), ENGL 4320 (5321), ENGL 4330 (5330), ENGL 4340 (5340), ENGL 4712 (5712), ENGL 4713 (5713), ENGL 4830 (5830)

The remaining 9 hours of upper-division ENGL courses must be taken from any ENGL courses 3000 or above EXCEPT core courses. (The upper-division core courses are ENGL 3000, 3810, 3820, 3910, 3920, 4121 (5121), and 4995.)

Students in the language and rhetoric concentration can also have a concentration in professional and technical communication by taking 21 elective hours in the following courses: PC 2500 - Communicating in the Professions, PC 3250 - Professional Communication I, PC 4850 (5850) - Internship and 15 additional hours from the following: PC 3500, PC 3700, PC 3750, PC 4850 (5850), PC 4940 (5940), PC 4970 (5970), PC 4990 (5990).

**English, Theatre Concentration, Performance
Option, B.A.
(Leading to the Bachelor of Arts Degree)**

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- Foreign Language Credit: 3.
- MATH Credit: 3.
- Natural Science Credit: 4.
- Social/Behavioral Sciences Elective Credit: 3.
- UNIV 1020 - First-Year Connections Credit: 1.

Total: 17

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- Foreign Language Credit: 3.
- Natural Science Credit: 4.
- THEA 1030 - Introduction to Theatre Credit: 3.

Total: 13

Sophomore Year

First Semester

- ENGL 2330 - Topics in World Literature Credit: 3.
- Foreign Language Credit: 3.
- HIST 2010 - Early United States History Credit: 3.

- PC 2500 - Communicating in the Professions Credit: 3. or

- COMM 2025 - Fundamentals of Communication Credit: 3.

- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Second Semester

- ENGL 3810 - British Literature I Credit: 3.
- Foreign Language Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- THEA 1015 - Acting I Credit: 3.

Total: 12

Junior Year

First Semester

- Directed THEA Electives Credit: 3. ¹
- Elective Credit: 3.
- ENGL 3820 - British Literature II Credit: 3.
- ENGL 3910 - American Literature I Credit: 3.
- THEA 2015 - Acting II Credit: 3.

Total: 15

Second Semester

- Directed THEA Electives Credit: 3. ¹
- Elective Credit: 3.
- ENGL 3000 - Introduction to English Methods and Research Credit: 3.
- ENGL 3920 - American Literature II Credit: 3.

- ENGL 3400 - Introduction to Creative Writing Credit: 3. or

- ENGL 4430 (5430) - Creative Writing: Fiction Credit: 3. or

- ENGL 4440 (5440) - Creative Writing: Essay Credit: 3. or

- ENGL 4411 (5411) - Writing in the Professions Credit: 3. or

- ENGL 4421 (5421) - Forms of Argumentation and Persuasion: Theory and Practice Credit: 3. or

- ENGL 4551 (5451) - Introduction to Rhetoric: Theory and Practice Credit: 3.

Total: 15

Senior Year

First Semester

- Electives Credit: 6.

- ENGL 4121 (5121) - Shakespeare Credit: 3.

- ENGL 4640 (5640) - Modern and Contemporary Drama Credit: 3.

- THEA 4300 - Play Directing Credit: 3.

Total: 15

Second Semester

- Electives Credit: 6.

- ENGL 4511 (5511) - Introduction to Descriptive Linguistics Credit: 3. or

- ENGL 4521 (5521) - History of the English Language Credit: 3. or

- ENGL 4531 (5531) - Grammar and Language Credit: 3.

- ENGL 4995 - Senior Colloquium Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.

Total: 15

Note:

¹ Select two Directed THEA Electives:

THEA 1025 - Stagecraft I 3.

THEA 2120 Theatre Production 1.

THEA 3000 - History of the Theatre 3.

THEA 3001 - Theatre Special Topics 3.

THEA 3600 - Film Studies 3.

THEA 4100 (5100) - Advanced Acting 3.

THEA 4400 (5400) - Dramatic Literature 3.

THEA 4500 (5500) - Creative Dramatics 3.

THEA 4600 - Theatre Internship 3.

Students in the writing, literature or drama concentrations can also have a concentration in Professional Communication by taking 21 elective hours in the following courses:

PC 2500 - Communicating in the Professions

PC 3250 - Professional Communication I

PC 3500 - Rhetoric and the Internet

PC 3700 - Information Design in the Professions

PC 3750 - Ethics in the Professions
PC 4850 (5850) - Internship
PC 4940 (5940) - Technical Editing
PC 4970 (5970) - Professional Communication II
PC 4990 - Business and Grant Proposal Writing

**English, Theatre Concentration, Technical Option,
B.A.
(Leading to the Bachelor of Arts Degree)**

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- Foreign Language Credit: 3.
- Mathematics Credit: 3.
- Natural Science Credit: 4.
- Social/Behavioral Sciences Elective Credit: 3.
- UNIV 1020 - First-Year Connections Credit: 1.

Total: 17

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- Foreign Language Credit: 3.
- Natural Science Credit: 4.
- THEA 1030 - Introduction to Theatre Credit: 3.

Total: 13

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 2330 - Topics in World Literature Credit: 3.
- Foreign Language Credit: 3.
- HIST 2010 - Early United States History Credit: 3.
- THEA 1025 - Stagecraft I Credit: 3.

Total: 15

Second Semester

- ENGL 3810 - British Literature I Credit: 3.
- Foreign Language Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.
- THEA 2025 - Stagecraft II Credit: 3.

Total: 15

Junior Year

First Semester

- Directed THEA Elective Credit: 3. ¹
- Elective Credit: 3.
- ENGL 3820 - British Literature II Credit: 3.
- ENGL 3910 - American Literature I Credit: 3.
- THEA 3200 - Theatrical Design Credit: 3.

Total: 15

Second Semester

- Directed THEA Elective Credit: 3. ¹
- Elective Credit: 3.
- ENGL 3000 - Introduction to English Methods and Research Credit: 3.
- ENGL 3920 - American Literature II Credit: 3.
- English Writing Course
- ENGL 3400 - Introduction to Creative Writing Credit: 3. or
- ENGL 4430 (5430) - Creative Writing: Fiction Credit: 3. or
- ENGL 4440 (5440) - Creative Writing: Essay Credit: 3. or
- ENGL 4411 (5411) - Writing in the Professions Credit: 3. or
- ENGL 4421 (5421) - Forms of Argumentation and Persuasion: Theory and Practice Credit: 3. or
- ENGL 4551 (5451) - Introduction to Rhetoric: Theory and Practice Credit: 3.

Total: 15

Senior Year

First Semester

- Electives Credit: 6.
- ENGL 4121 (5121) - Shakespeare Credit: 3.
- ENGL 4640 (5640) - Modern and Contemporary Drama Credit: 3.
- THEA 4300 - Play Directing Credit: 3.

Total: 15

Second Semester

- Electives Credit: 6.
- ENGL 4995 - Senior Colloquium Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.

English Language Studies Course

- ENGL 4511 (5511) - Introduction to Descriptive Linguistics Credit: 3. or
- ENGL 4521 (5521) - History of the English Language Credit: 3. or
- ENGL 4531 (5531) - Grammar and Language Credit: 3.

Total: 15

Note:

¹Select two Directed THEA Electives:

- THEA 1015 - Acting I Credit 3.
- THEA 2110 - Play Production Credit 1. May be repeated for credit.
- THEA 3000 - History of the Theatre Credit 3.
- THEA 3001 - Theatre Special Topics Credit 3.
- THEA 3600 - Film Studies Credit 3.
- THEA 4400 (5400) - Dramatic Literature Credit 3.
- THEA 4500 (5500) - Creative Dramatics Credit 3.
- THEA 4600 THEA 4600 - Theatre Internship Credit 3.

Students in the writing, literature or drama concentrations can also have a concentration in Professional Communication by taking 21 elective hours in the following courses:

- PC 2500 Communicating in the Professions
- PC 3250 Professional Communication I
- PC 3500 - Rhetoric and the Internet
- PC 3700 Information Design in the Professions
- PC 3750 Ethics in the Professions
- PC 4850 (5850) Internship
- PC 4940 (5940) - Technical Editing
- PC 4970 (5970) Professional Communication II
- PC 4990 - Business and Grant Proposal Writing

School of Environmental Studies

**Dr. Hayden Mattingly, Director; Lecturer, Sharp;
Assistant Professor, Boles**

Environmental and Sustainability Studies, Environmental Science Concentration, Biology Option, B.S.

Curriculum

Freshman Year

First Semester

- BIOL 1010 - Introduction to Biology Credit: 4. or
- BIOL 1113 - General Biology I Credit: 4.

- CHEM 1010 - Introductory Chemistry I Credit: 4. or
- CHEM 1110 - General Chemistry I Credit: 4.

- ENGL 1010 - English Composition I Credit: 3.
- ESS 1020 - Connections to Environmental and Sustainability Studies Credit: 1.

- MATH 1130 - College Algebra Credit: 3. or
- MATH 1830 - Applied Calculus Credit: 3. or
- MATH 1910 - Calculus I Credit: 4.

Total: 15-16

Second Semester

- BIOL 1020 - Diversity of Life Credit: 4.
- CHEM 1020 - Introductory Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- ESS 1100 - Introduction to Environmental Studies Credit: 3.
- GEOL 1045 - Earth Environment, Resources and Society Credit: 4.

Total: 18

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- HIST 2010 - Early United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- PHIL 1030 - Introduction to Philosophy Credit: 3.

- SOC 1010 - Introduction to Sociology Credit: 3.
- Total: 15

Second Semester

- AGRN 2300 - Soils Credit: 3.
- AGRN 2310 - Soil Chemical Properties Credit: 1.
- BIOL 1123 - General Biology II Credit: 4.

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ECON 2010 - Principles of Microeconomics Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.

Total: 17

Junior Year

First Semester

- BIOL 3120 - General Ecology Credit: 3. or
- BIOL 3130 - General Ecology Credit: 4.

- ESS 3000 - Introduction to Environmental Law Credit: 3.

- MATH 3070 - Statistical Methods I Credit: 3.
- PHYS 2010 - Algebra-based Physics I Credit: 4.

Total: 13-14

Second Semester

- BIOL 2310 - General Botany Credit: 4.

- CHEM 4710 (5710) - Environmental Chemistry Credit: 3. or
- ESS 3710 - Chemistry and the Environment Credit: 3.

- GEOG 3200 - Water Resources Credit: 3.
- HIST 3900 - Environmental History Credit: 3.
- SOC 3600 - Environmental Sociology Credit: 3.

Total: 16

Senior Year

First Semester

- AGBE 4120 (5120) - Natural Resource Economics Credit: 3.

- BIOL 3140 - Cellular Biology Credit: 4. or
- BIOL 3200 - General Microbiology Credit: 4. or
- BIOL 3810 - General Genetics Credit: 4.

- Biology Option Elective Credit: 3.
- ESS 4001 - Society and the Environment: Capstone Experience Part 1. Credit: 3.

Total: 13

Second Semester

- Biology Option Electives Credit: 5.
- Electives Credit: 4.
- ESS 4002 - Society and the Environment: Capstone Experience Part 2. Credit: 3.

Total: 12

Note:

¹Biology Option Elective

One of the following:

AGHT 3450 Dendrology
BIOL 3240 Field Botany
BIOL 4330 (5330) Plant Ecology

One of the following:

GEOL 2000 Earth Evolution and Life History
WFS 4500 (5500) National Wildlife Policy
WFS 4730 (5730) Conservation Biology

One of the following:

BIOL 4650 (5650) Marine Biology
BIOL 4840 (5840) Limnology
BIOL 4130 (5130) Environmental Microbiology

One of the following:

BIOL 3330 Entomology
BIOL 4230 (5230) Animal Behavior
BIOL 4610 (5610) Invertebrate Zoology
BIOL 4630 (5630) Ornithology
BIOL 4810 (5810) Ichthyology
BIOL 4820 (5820) Mammalogy
BIOL 4830 (5830) Herpetology

**Environmental and Sustainability Studies,
Environmental Science Concentration, Chemistry
Option B.S.**

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- ESS 1020 - Connections to Environmental and Sustainability Studies Credit: 1.
- Humanities/Fine Arts Elective Credit: 3.

- MATH 1130 - College Algebra Credit: 3. or
- MATH 1830 - Applied Calculus Credit: 3. or
- MATH 1910 - Calculus I Credit: 4.

Total: 13-14

Second Semester

- BIOL 1020 - Diversity of Life Credit: 4.
- CHEM 1120 - General Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- ESS 1100 - Introduction to Environmental Studies Credit: 3.

Total: 14

Sophomore Year

First Semester

- CHEM 3010 - Organic Chemistry I Credit: 4.
- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or

- ENGL 2330 - Topics in World Literature Credit: 3.

- GEOL 1045 - Earth Environment, Resources and Society Credit: 4.

- PHIL 1030 - Introduction to Philosophy Credit: 3.

Total: 14

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- AGRN 2300 - Soils Credit: 3.

- AGRN 2310 - Soil Chemical Properties Credit: 1.

- CHEM 3020 - Organic Chemistry II Credit: 4.

- ECON 2010 - Principles of Microeconomics Credit: 3.

- SOC 1010 - Introduction to Sociology Credit: 3.

Total: 17

Junior Year

First Semester

- BIOL 3120 - General Ecology Credit: 3. or
- BIOL 3130 - General Ecology Credit: 4.

- CHEM 3410 - Quantitative Analysis Credit: 4.

- ESS 3000 - Introduction to Environmental Law Credit: 3.

- MATH 3070 - Statistical Methods I Credit: 3.

- PHYS 2010 - Algebra-based Physics I Credit: 4.

Total: 17-18

Second Semester

- CHEM 3500 - Elements of Physical Chemistry Credit: 3.

- GEOL 3200 - Water Resources Credit: 3.

- HIST 2010 - Early United States History Credit: 3.

- HIST 3900 - Environmental History Credit: 3.

- SOC 3600 - Environmental Sociology Credit: 3.

Total: 15

Senior Year

First Semester

- AGBE 4120 (5120) - Natural Resource Economics Credit: 3.

- CHEM 4710 (5710) - Environmental Chemistry Credit: 3.

- Elective Credit: 3.

- ESS 4001 - Society and the Environment: Capstone Experience Part 1. Credit: 3.

- HIST 2020 - Modern United States History Credit: 3.

Total: 15

Second Semester

- CHEM 4720 (5720) - Advanced Environmental Chemistry Credit: 3.

- Chemistry Option Electives Credit: 8.

- ESS 4002 - Society and the Environment: Capstone Experience Part 2. Credit: 3.

Total: 14

Note:

**Environmental and Sustainability Studies,
Environmental Science Concentration, Natural
Resources Option, B.S.**

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- ESS 1020 - Connections to Environmental and Sustainability Studies Credit: 1.
- GEOL 1045 - Earth Environment, Resources and Society Credit: 4.

- MATH 1130 - College Algebra Credit: 3. or
- MATH 1830 - Applied Calculus Credit: 3. or
- MATH 1910 - Calculus I Credit: 4.

- SOC 1010 - Introduction to Sociology Credit: 3.

Total: 14-15

Second Semester

- BIOL 1020 - Diversity of Life Credit: 4.
- Electives Credit: 5-6.
- ENGL 1020 - English Composition II Credit: 3.
- ESS 1100 - Introduction to Environmental Studies Credit: 3.

Total: 15-16

Sophomore Year

First Semester

- CHEM 1010 - Introductory Chemistry I Credit: 4. or
- CHEM 1110 - General Chemistry I Credit: 4.

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- HIST 2010 - Early United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- PHIL 1030 - Introduction to Philosophy Credit: 3.

Total: 16

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ECON 2010 - Principles of Microeconomics Credit: 3.

- ESS 3710 - Chemistry and the Environment Credit: 3. or

- CHEM 4710 (5710) - Environmental Chemistry Credit: 3.

- HIST 2020 - Modern United States History Credit: 3.

¹Chemistry Option Elective

Two of the following:

- GEOL 4100 Environmental Sedimentology
- GEOL 4650 (5650) Applied Geochemistry
- GEOL 4711 (5711) Hydrogeology
- GEOG 4510 (5510) - Theory of GIS I
- GEOG 4650 (5650) Environmental Applications of GIS
- AGRN 3230 Environmental Soil Science
- AGRN 4220 (5220) Environmental Soil Chemistry
- BIOL 4130 (5130) Environmental Microbiology
- BIOL 4840 (5840) Limnology
- BIOL 4850 (5850) Applied Microbiology
- WFS 4500 (5500) National Wildlife Policy
- WFS 4730 (5730) Conservation Biology
- CHEM 4992 Undergraduate Research

- PHYS 2010 - Algebra-based Physics I Credit: 4.

Total: 16

Junior Year

First Semester

- AGBE 2010 - World Food and Society Credit: 3.
- Directed Elective Credit: 3.
- Elective Credit: 1-2.
- ESS 3000 - Introduction to Environmental Law Credit: 3.

- MATH 3070 - Statistical Methods I Credit: 3.

Total: 13-14

Second Semester

- AGRN 2300 - Soils Credit: 3.
- AGRN 2310 - Soil Chemical Properties Credit: 1.

- BIOL 3120 - General Ecology Credit: 3. or
- BIOL 3130 - General Ecology Credit: 4.

- GEOL 3200 - Water Resources Credit: 3.

- HIST 3900 - Environmental History Credit: 3.

- SOC 3600 - Environmental Sociology Credit: 3.

Total: 16-17

Senior Year

First Semester

- AGBE 4120 (5120) - Natural Resource Economics Credit: 3.
- AGRN 3230 - Environmental Soil Science Credit: 4.
- Directed Elective Credit: 3.
- ESS 4001 - Society and the Environment: Capstone Experience Part 1. Credit: 3.

One of the following:

- AGBE 4130 - Agricultural Policy Credit: 3.
- AGET 3110 - Natural Resource Systems Credit: 2. and
- AGET 3115 - Natural Resource Systems Laboratory Credit: 1.
- AGET 4720 (5720) - Agricultural Processing Credit: 3.

Total: 16

Second Semester

- Elective Credit: 3.
 - ESS 4002 - Society and the Environment: Capstone Experience Part 2. Credit: 3.
- One of the following:
- AGRN 4210 (5210) - Soil Fertility and Fertilizers Credit: 3.
 - AGRN 4220 (5220) - Environmental Soil Chemistry Credit: 3.
 - BIOL 4840 (5840) - Limnology Credit: 3.
 - GEOL 4150 (5150) - Geomorphology Credit: 4.
- One of the following:
- AGBE 4130 - Agricultural Policy Credit: 3.
 - AGET 4720 (5720) - Agricultural Processing Credit: 3.
 - AGET 3110 - Natural Resource Systems Credit: 2. and
 - AGET 3115 - Natural Resource Systems Laboratory Credit: 1.
- Total: 12
- Note:
- Directed Electives
- BIOL 4330 (5330) - Plant Ecology Credit: 3.
 - BIOL 4840 (5840) - Limnology Credit: 3.
 - GEOL 2000 - Earth Evolution and Life History Credit: 3.
 - GEOG 1010 - Weather and Climate Credit: 3.
 - GEOG 4510 (5510) - Theory of GIS I Credit: 3.
 - GEOG 4650 (5650) - Environmental Applications of GIS Credit: 3.
 - WFS 4730 (5730) - Conservation Biology Credit: 3.
- Environmental and Sustainability Studies,
Environmental Technology Concentration, B.S.**
- Curriculum
- Freshman Year
- First Semester
- CHEM 1110 - General Chemistry I Credit: 4.
 - Elective Credit: 3.
 - ENGL 1010 - English Composition I Credit: 3.
 - ESS 1020 - Connections to Environmental and Sustainability Studies Credit: 1.
 - HIST 2010 - Early United States History Credit: 3.
- Total: 14
- Second Semester
- CHEM 1120 - General Chemistry II Credit: 4.
 - ENGL 1020 - English Composition II Credit: 3.
 - ESS 1100 - Introduction to Environmental Studies Credit: 3.
 - HIST 2020 - Modern United States History Credit: 3.
 - SOC 1010 - Introduction to Sociology Credit: 3.
- Total: 16
- Sophomore Year
- First Semester
- BIOL 1020 - Diversity of Life Credit: 4.
 - ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or
 - ENGL 2330 - Topics in World Literature Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
 - MATH 1910 - Calculus I Credit: 4.
 - PHIL 1030 - Introduction to Philosophy Credit: 3.
- Total: 17
- Second Semester
- COMM 2025 - Fundamentals of Communication Credit: 3. or
 - PC 2500 - Communicating in the Professions Credit: 3.
- ECON 2010 - Principles of Microeconomics Credit: 3.
 - MATH 1920 - Calculus II Credit: 4.
 - PHYS 2010 - Algebra-based Physics I Credit: 4.
- Total: 17
- Junior Year
- First Semester
- BIOL 3130 - General Ecology Credit: 4. or
 - BIOL 3120 - General Ecology Credit: 3.
 - CEE 3413 - Environmental Engineering Credit: 3.
 - Elective Credit: 2-3.
 - ESS 3000 - Introduction to Environmental Law Credit: 3.
 - MATH 3070 - Statistical Methods I Credit: 3.
- Total: 15
- Second Semester
- ESS 3710 - Chemistry and the Environment Credit: 3. or
 - CHEM 4710 (5710) - Environmental Chemistry Credit: 3.
 - GEOG 4510 (5510) - Theory of GIS I Credit: 3.
 - GEOL 1045 - Earth Environment, Resources and Society Credit: 4.
 - HIST 3900 - Environmental History Credit: 3.
 - SOC 3600 - Environmental Sociology Credit: 3.
- Total: 16
- Senior Year
- First Semester
- AGBE 4120 (5120) - Natural Resource Economics Credit: 3.
 - ET Elective Credit: 3.
 - ESS 4001 - Society and the Environment: Capstone Experience Part 1. Credit: 3.
 - GEOG 4650 (5650) - Environmental Applications of GIS Credit: 3.
- Total: 12
- Second Semester
- Electives Credit: 7.
 - ET Elective Credit: 3.
 - ESS 4002 - Society and the Environment: Capstone Experience Part 2. Credit: 3.

Total: 13

Note:

¹Environmental Technology Electives

- AGET 3510 Agricultural Surveying
- AGET 3620 Computer-Aided Design in Agriculture
- AGET 2110 Agricultural Engineering Technology
- BIOL 4130 (5130) Environmental Microbiology
- BIOL 4840 (5840) Limnology
- CEE 4410 (5410) Solid and Hazardous Waste Management
- CEE 4430 (5430) Water and Wastewater Engineering
- CEE 4450 (5450) Water Quality Modeling
- ESS 4300 Environmental Management System
- GEOG 1130 Geography of Natural Hazards
- GEOG 4511 (5511) Theory of GIS II
- GEOL 4711 (5711) Hydrogeology
- PHYS 2010 Algebra-based Physics I or PHYS 2110 Calculus-based Physics I
- WFS 4500 (5500) National Wildlife Policy
- WFS 4730 (5730) Conservation Biology

Environmental and Sustainability Studies, Society, Culture and Communication Concentration, B.S.

Curriculum

Freshman Year

First Semester

- CHEM 1010 - Introductory Chemistry I Credit: 4. or
- CHEM 1110 - General Chemistry I Credit: 4.

- ENGL 1010 - English Composition I Credit: 3.
- ESS 1020 - Connections to Environmental and Sustainability Studies Credit: 1.
- HIST 2010 - Early United States History Credit: 3.

- MATH 1130 - College Algebra Credit: 3. or
- MATH 1830 - Applied Calculus Credit: 3. or
- MATH 1910 - Calculus I Credit: 4.

- POLS 1030 - American Government Credit: 3.

Total: 17

Second Semester

- BIOL 1020 - Diversity of Life Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- ESS 1100 - Introduction to Environmental Studies Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- SOC 1010 - Introduction to Sociology Credit: 3.

Total: 16

Sophomore Year

First Semester

- COMM 2075 - Organizational Communication Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.
- JOUR 2200 - Mass Communication in a Changing Society Credit: 3.
- PHIL 1030 - Introduction to Philosophy Credit: 3.

Total: 15

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ECS Elective Credit: 3.
- ECON 2010 - Principles of Microeconomics Credit: 3.
- Electives Credit: 6.

Total: 15

Junior Year

First Semester

- BMGT 3510 - Management and Organization Behavior Credit: 3.
- ECS Elective Credit: 3.
- ESS 3000 - Introduction to Environmental Law Credit: 3.
- GEOL 1045 - Earth Environment, Resources and Society Credit: 4.
- MATH 3070 - Statistical Methods I Credit: 3.

Total: 16

Second Semester

- BIOL 3120 - General Ecology Credit: 3. or
- BIOL 3130 - General Ecology Credit: 4.
- CHEM 4710 (5710) - Environmental Chemistry Credit: 3. or
- ESS 3710 - Chemistry and the Environment Credit: 3.

- HIST 3900 - Environmental History Credit: 3.
- PC 3250 - Professional Communication I Credit: 3.
- SOC 3600 - Environmental Sociology Credit: 3.

Total: 15-16

Senior Year

First Semester

- AGBE 4120 (5120) - Natural Resource Economics Credit: 3.
- ECS Elective Credit: 3.
- ENGL 4931 (5931) - Literature and the Environment Credit: 3.
- ESS 4001 - Society and the Environment: Capstone Experience Part 1. Credit: 3.

Total: 12

Second Semester

- ECON 4200 - Environmental Economics Credit: 3.
 - ECS Elective Credit: 3.
 - Electives Credit: 6.
 - ESS 4002 - Society and the Environment: Capstone Experience Part 2. Credit: 3.
- Total: 15
- Select four courses from one of the following options for the ECS Electives:
- Communication and Media Option
- JOUR 2220 - News Reporting and Copy-Editing Credit: 3.
 - JOUR 3460 - Introduction to Public Relations Credit: 3.
 - PC 3700 - Information Design in the Professions Credit: 3.
 - PC 4970 (5970) - Professional Communication II Credit: 3.
 - COMM 3620 - Intercultural Communication Credit: 3.
 - COMM 4420 - Advanced Organizational Communication Credit: 3.
 - COMM 4630 (5630) - Persuasion Credit: 3.
 - WEBD 1500 - Introduction to Web Design Credit: 3.
 - WEBD 2300 - Web Site Design: Dynamic Sites Credit: 3.
 - ESS Internship Credit: 3.
- Social Science and Policy Option
- GEOG 1035 - World Regional Geography I Credit: 3.
- or
- GEOG 1012 - Cultural Geography Credit: 3. or
 - GEOG 1130 - Geography of Natural Hazards Credit: 3.
- POLS 3300 - Introduction to Latin American Politics Credit: 3.
 - POLS 3700 - The Legislative Process Credit: 3.
 - POLS 4610 - Public Administration and Public Policies Credit: 3.
 - SOC 3720 - Rural Sociology Credit: 3.
 - SOC 4090 (5090) - Cross Cultural Communications and Cultural Diversity Credit: 3.
 - SOC 4330 (5330) - Population and Social Process Credit: 3.
 - SOC 4860 (5860) - Social Movements and Social Change Credit: 3.
 - ESS 4900 Internship Credit: 3.
- Leadership and Environmental Management Option
- COMM 4420 - Advanced Organizational Communication Credit: 3.
 - PADM 4226 Intro to Nonprofit Organizations Credit: 3.
 - PSY 3590 Psychology of Personality Credit: 3.
 - ESS 4300 - Environmental Management System Credit: 3.

Department of Exercise Science, Physical Education and Wellness

**Exercise Science, Physical Education and Wellness, Fitness and Wellness Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

- BIOL 1010 - Introduction to Biology Credit: 4. or
- BIOL 1113 - General Biology I Credit: 4.

- ENGL 1010 - English Composition I Credit: 3.
- EXPW 1021 - Connection to Exercise Science, Physical Education and Wellness Credit: 1.
- EXPW 1022 - Introduction to Exercise Science, Physical Education and Wellness Credit: 2.
- HEC 1030 - Introduction to Nutrition Credit: 2.
- MATH Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0. ¹

Total: 15

Second Semester

- BIOL 1020 - Diversity of Life Credit: 4. or
- BIOL 1123 - General Biology II Credit: 4.

- ENGL 1020 - English Composition II Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- EXPW 1150 - Care and Prevention of Athletic Injuries Credit: 3.
- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 16

Sophomore Year

First Semester

- BIOL 2010 - Human Anatomy and Physiology I Credit: 4.
- EXPW 2200 - Leadership Development in Exercise and Sport Credit: 3.
- EXPW 2160 - Drug Use and Abuse Credit: 2.
- HIST 2010 - Early United States History Credit: 3.
- Social/Behavioral Science Elective Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0. ¹

Total: 15

Second Semester

- BIOL 2020 - Human Anatomy and Physiology II Credit: 4.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- EXPW 2430 - First Aid, Safety and CPR Credit: 2.
- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.

Total: 15

Junior Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- EXPW 2150 - Human Sexuality Credit: 3.
- EXPW 3170 - Motor Learning Credit: 3.
- EXPW 3410 - Lifespan Motor Development Credit: 3.
- Elective Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0. ¹

Total: 15

Second Semester

- EXPW 3310 - Professional Preparation Credit: 1.
- EXPW 3032 - Exercise Prescription for Fitness and Wellness Credit: 3.
- EXPW 4171 - Exercise and Sport Psychology Credit: 3.
- EXPW 4420 - Kinesiology Credit: 3.
- Elective Credit: 5.

Total: 15

Senior Year

First Semester

- BMGT 3510 - Management and Organization Behavior Credit: 3.
- EXPW 4032 - Training for Performance Credit: 3.
- EXPW 4440 - Physiology of Exercise Credit: 3.
- EXPW 4520 - Adapted Physical Activity and Sport Credit: 3.
- EXPW 4730 - Assessment and Evaluation in Exercise Science Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0. ¹

Total: 15

Second Semester

- EXPW 4042 - Health Promotion Credit: 3.
- EXPW 4760 - Functional Movement Credit: 3.
- EXPW 4810 - Field Experience Credit: 1-4. (Three credit hours required)
- EXPW 4900 - Research Methods in Exercise Science Credit: 3.
- Elective Credit: 2.

Total: 14

Note:

¹Once per academic year while in this major.

**Exercise Science, Physical Education and Wellness,
Licensure Concentration, B.S.
(Leading to the Bachelor of Science Degree and the
Apprentice License, with Physical Education
endorsement, Grades K-12)**

Curriculum

Freshman Year

First Semester

- BIOL 1010 - Introduction to Biology Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- EXPW 1021 - Connection to Exercise Science, Physical Education and Wellness Credit: 1.
- EXPW 1022 - Introduction to Exercise Science, Physical Education and Wellness Credit: 2.
- FOED 2011 - Introduction to Teaching and Technology Credit: 2.
- PHED 1002 - Physical Fitness Test Credit: 0.
- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 15

Second Semester

- BIOL 1020 - Diversity of Life Credit: 4.
- EDPY 2210 - Educational Psychology Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- EXPW 2130 - Concepts of Comprehensive Health Credit: 3.
- MATH Credit: 3.

Total: 16

Sophomore Year

First Semester

- BIOL 2350 - Introductory Anatomy and Physiology Credit: 4.
- EXPW 2150 - Human Sexuality Credit: 3.
- EXPW 3565 - Physical Activity and Sport Skills Credit: 3.
- HIST 2010 - Early United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0.

Total: 16

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- EXPW 2430 - First Aid, Safety and CPR Credit: 2.
- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

Total: 17

Junior Year

First Semester

- EXPW 3170 - Motor Learning Credit: 3.
- EXPW 3720 - Instructional Strategies Credit: 3.
- EXPW 4420 - Kinesiology Credit: 3.
- EXPW 4752 - Elementary Physical Education Practicum Credit: 2.

- EXPW 4722 - Methods of Teaching Elementary Physical Education Credit: 3.
 - PHED 1002 - Physical Fitness Test Credit: 0.
- Total: 14
- Second Semester
- EXPW 3000 - Professional Development and Career Planning Credit: 1.
 - EXPW 3132 - School Health Pedagogy and Practicum Credit: 3.
 - EXPW 3410 - Lifespan Motor Development Credit: 3.
 - EXPW 4440 - Physiology of Exercise Credit: 3.
 - EXPW 4712 - Methods of Teaching Secondary Physical Education Credit: 3.
 - EXPW 4751 - Secondary Physical Education Practicum Credit: 2.
 - FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.

Total: 18

Senior Year

First Semester

- EXPW 4520 - Adapted Physical Activity and Sport Credit: 3.
- EXPW 4731 - Assessment in the Physical Education Classroom Credit: 2.
- EXPW 4871 - Residency I Credit: 5.
- EXPW 4874 - Professional Seminar I Credit: 2.
- PHED 1002 - Physical Fitness Test Credit: 0.

Total: 12

Second Semester

- EXPW 4881 - Residency II Credit: 10.
- EXPW 4882 - Professional Seminar II Credit: 2.

Total: 12

**Exercise Science, Physical Education and Wellness,
Pre-Athletic Training Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

- BIOL 1010 - Introduction to Biology Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- EXPW 1021 - Connection to Exercise Science, Physical Education and Wellness Credit: 1.
- EXPW 1022 - Introduction to Exercise Science, Physical Education and Wellness Credit: 2.
- MATH 1530 - Introductory Statistics Credit: 3.
- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 16

Second Semester

- BIOL 1020 - Diversity of Life Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- EXPW 1110 - Introduction to Athletic Training Credit: 1.
- EXPW 1150 - Care and Prevention of Athletic Injuries Credit: 3.

- EXPW 2430 - First Aid, Safety and CPR Credit: 2.
 - HEC 1030 - Introduction to Nutrition Credit: 2.
 - PHED 1002 - Physical Fitness Test Credit: 0.
- Total: 15
- Sophomore Year
- First Semester
- BIOL 2010 - Human Anatomy and Physiology I Credit: 4.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- EXPW 2001 - Orthopedic Assessment I Credit: 4.
- EXPW 2130 - Concepts of Comprehensive Health Credit: 3.
- HEC 2220 - Medical Terminology for the Human Sciences Credit: 1.

Total: 15

Second Semester

- BIOL 2020 - Human Anatomy and Physiology II Credit: 4.
- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- EXPW 2002 - Orthopedic Assessment II Credit: 4.
- Humanities/Fine Arts Elective Credit: 3.²
- PHED 1002 - Physical Fitness Test Credit: 0.
- Social/Behavioral Science Elective Credit: 3.¹

Total: 17

Junior Year

First Semester

- Electives Credit: 7.
- EXPW 3006 - Medical Aspects of Athletic Training Credit: 3.
- HIST 2010 - Early United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.

Total: 16

Second Semester

- EXPW 3001 - Therapeutic Rehabilitation and Modalities Credit: 3.
- EXPW 3011 - Clinical I Credit: 3.
- EXPW 3170 - Motor Learning Credit: 3.
- EXPW 4730 - Assessment and Evaluation in Exercise Science Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0.

Total: 15

Senior Year

First Semester

- Elective Credit: 3.

- EXPW 4001 - Senior Seminar Credit: 3.
- EXPW 4011 - Clinical II Credit: 3.
- EXPW 4440 - Physiology of Exercise Credit: 3.
- NURS 4230 - Pharmacological Concepts in Nursing II Credit: 2.

Total: 14

Second Semester

- EXPW 3032 - Exercise Prescription for Fitness and Wellness Credit: 3.
- EXPW 3410 - Lifespan Motor Development Credit: 3.
- EXPW 4420 - Kinesiology Credit: 3.
- EXPW 4530 - Organization and Administration of Interscholar Athletics Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0.

Total: 12

Note:

¹Select as a social/behavioral science elective from the following list: ANTH 1100, ECON 2010, ECON 2020, GEOG 1012, POLS 1030 or SOC 1010.

²Select as a humanities/fine arts elective from the following list: PHIL 1030, HIST 2310, HIST 2320, THEA 1030, MUS 1030, ART 1035, ENGL 2235 or ENGL 2330.

Exercise Science, Physical Education and Wellness, Pre-Occupational Therapy Concentration, B.S. (Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

- Directed Electives Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- EXPW 1021 - Connection to Exercise Science, Physical Education and Wellness Credit: 1.
- EXPW 1022 - Introduction to Exercise Science, Physical Education and Wellness Credit: 2.
- MATH 1530 - Introductory Statistics Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0. (can be taken either fall or spring)
- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- EXPW 1120 - Introduction to Occupational Therapy Credit: 1.
- EXPW 1150 - Care and Prevention of Athletic Injuries Credit: 3.

• EXPW 2130 - Concepts of Comprehensive Health Credit: 3. or

• EXPW 2015 - Concepts of Health and Wellness Credit: 3.

• Humanities/Fine Arts Electives Credit: 3¹.

- MATH 1130 - College Algebra Credit: 3. or
- MATH 1710 - Pre-calculus Algebra Credit: 3.

Total: 16

Sophomore Year

First Semester

• BIOL 2010 - Human Anatomy and Physiology I Credit: 4.

• ENGL 2130 - Topics in American Literature Credit: 3. or

• ENGL 2235 - Topics in British Literature Credit: 3. or

• ENGL 2330 - Topics in World Literature Credit: 3.

• HEC 2020 - Nutrition for Health Sciences Credit: 3.

• HIST 2010 - Early United States History Credit: 3.

• SOC 1010 - Introduction to Sociology Credit: 3.

Total: 16

Second Semester

• BIOL 2020 - Human Anatomy and Physiology II Credit: 4.

• COMM 2025 - Fundamentals of Communication Credit: 3. or

• PC 2500 - Communicating in the Professions Credit: 3.

• Directed Elective Credit: 1.

• EXPW 3170 - Motor Learning Credit: 3.

• EXPW 3310 - Professional Preparation Credit: 1.

• HIST 2020 - Modern United States History Credit: 3.

• PHED 1002 - Physical Fitness Test Credit: 0.

Total: 15

Junior Year

First Semester

• Directed Elective Credit: 7.

• EXPW 2430 - First Aid, Safety and CPR Credit: 2.

• EXPW 3410 - Lifespan Motor Development Credit: 3.

• Humanities/Fine Arts Elective Credit: 3.¹

Total: 15

Second Semester

• Directed Elective Credit: 7.

• EXPW 3032 - Exercise Prescription for Fitness and Wellness Credit: 3.

• EXPW 4440 - Physiology of Exercise Credit: 3.

• EXPW 4810 - Field Experience Credit: 1-4.

• PHED 1002 - Physical Fitness Test Credit: 0.

Total: 16

Senior Year

First Semester

• Directed Elective Credit: 3.

• EXPW 4171 - Exercise and Sport Psychology Credit: 3.

- EXPW 4420 - Kinesiology Credit: 3.
- EXPW 4520 - Adapted Physical Activity and Sport Credit: 3.
- EXPW 4730 - Assessment and Evaluation in Exercise Science Credit: 3.

Total: 15

Second Semester

- Directed Elective Credit: 6-7.
- EXPW 4900 - Research Methods in Exercise Science Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0.
- SPED 3031 - Physical Management and Support Services for Orthopedic, Motor and Health Impaired Credit: 3.

Total: 13

Note:

¹Select a Humanities/Fine Arts Elective.

Directed Electives

- ANTH 1100 Introduction to Anthropology Credit 3.
- BIOL 1113 General Biology I Credit 4.
- BIOL 1123 - General Biology II Credit 4.
- BIOL 3140 - Cellular Biology Credit 4.
- BIOL 3230 - Health Science Microbiology Credit 4.
- CHEM 1110 - General Chemistry I Credit 4.
- CHEM 1120 - General Chemistry II Credit 4.
- HEC 2220 - Medical Terminology for the Human Sciences Credit 1.
- HEC 2550
- HIT 1010 Medical Terminology Credit 3. (RODP Course)
- LIST 4050
- LIST 4090
- PHYS 2010 - Algebra-based Physics I Credit 4.
- PHYS 2020 - Algebra-based Physics II Credit 4.
- PSY 2130 - Life Span Development Psychology Credit 3.
- PSY 4160 (5160) - Abnormal Psychology Credit 3.
- SOCI 1120 Introduction to Cultural Anthropology Credit 3.
- SPAN 1015
- SPED 2010

**Exercise Science, Physical Education and Wellness,
Pre-Physical Therapy Concentration, B.S.
(Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- EXPW 1021 - Connection to Exercise Science, Physical Education and Wellness Credit: 1.
- EXPW 1022 - Introduction to Exercise Science, Physical Education and Wellness Credit: 2.

- MATH 1710 - Pre-calculus Algebra Credit: 3. or
- MATH 1130 - College Algebra Credit: 3.

- SOC 1010 - Introduction to Sociology Credit: 3.

- Elective Credit: 4.

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- EXPW 1150 - Care and Prevention of Athletic Injuries Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.¹
- MATH 1530 - Introductory Statistics Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0.
- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 16

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- EXPW 2430 - First Aid, Safety and CPR Credit: 2.
- HIST 2010 - Early United States History Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0.
- Electives Credit: 7.

Total: 15

Second Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- EXPW 3170 - Motor Learning Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.¹
- Elective Credit: 4.

Total: 16

Junior Year

First Semester

- BIOL 2010 - Human Anatomy and Physiology I Credit: 4.
- EXPW 4171 - Exercise and Sport Psychology Credit: 3.
- EXPW 4810 - Field Experience Credit: 1-4. (Three hours required)
- PHED 1002 - Physical Fitness Test Credit: 0.
- Elective Credits: 4.

Total: 14

Second Semester

- BIOL 2020 - Human Anatomy and Physiology II Credit: 4.
- EXPW 3032 - Exercise Prescription for Fitness and Wellness Credit: 3.

- EXPW 3410 - Lifespan Motor Development Credit: 3.
- EXPW 4440 - Physiology of Exercise Credit: 3.
- HEC 1030 - Introduction to Nutrition Credit: 2.

Total: 15

Senior Year

First Semester

- DS 2810 - Computer Applications in Business Credit: 3.

- EXPW 4210 - Gerontology Credit: 3.

- EXPW 4520 - Adapted Physical Activity and Sport Credit: 3.

- EXPW 4730 - Assessment and Evaluation in Exercise Science Credit: 3.

- Elective Credit: 3.

Total: 15

Second Semester

- EXPW 4420 - Kinesiology Credit: 3.

- EXPW 4900 - Research Methods in Exercise Science Credit: 3.

- SPED 3031 - Physical Management and Support Services for Orthopedic, Motor and Health Impaired Credit: 3.

- PHED 1002 - Physical Fitness Test Credit: 0.

- Elective Credit: 5.

Total: 14

Note:

- ¹ Select a Humanities/Fine Arts Elective.

Directed Electives

- BIOL 1113 General Biology I Credit 4.
- BIOL 1123 - General Biology II Credit 4.
- BIOL 3140 - Cellular Biology Credit 4.
- BIOL 3230 - Health Science Microbiology Credit 4.
- CHEM 1110 - General Chemistry I Credit 4.
- CHEM 1120 - General Chemistry II Credit 4.
- HEC 2220 - Medical Terminology for the Human Sciences Credit 1.
- HIT 1010 - Medical Terminology Credit 3. (TN eCampus Course)
- PHYS 2010 - Algebra-based Physics I Credit 4.
- PHYS 2020 - Algebra-based Physics II Credit 4.
- PSY 2130 - Life Span Development Psychology Credit 3.
- PSY 4160 (5160) - Abnormal Psychology Credit 3.

Exercise Science, Physical Education and Wellness, Pre-Physician Assistant Concentration, B.S. (Leading to the Bachelor of Science Degree)

Freshman Year

First Semester

- BIOL 1113 - General Biology I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.

- HEC 1030 - Introduction to Nutrition Credit: 2.

- EXPW 1021 - Connection to Exercise Science, Physical Education and Wellness Credit: 1.

- EXPW 1022 - Introduction to Exercise Science, Physical Education and Wellness Credit: 2.

- MATH 1130 - College Algebra Credit: 3.

- PHED 1002 - Physical Fitness Test Credit: 0.

Total: 15

Second Semester

- BIOL 1123 - General Biology II Credit: 4.

- ENGL 1020 - English Composition II Credit: 3.

- EXPW 1150 - Care and Prevention of Athletic Injuries Credit: 3.

- MATH 1530 - Introductory Statistics Credit: 3.

- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 16

Sophomore Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.

- ENGL 2130 - Topics in American Literature Credit: 3.

- HIST 2010 - Early United States History Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.

- Elective Credit: 2.

- PHED 1002 - Physical Fitness Test Credit: 0.

Total: 15

Second Semester

- BIOL 3230 - Health Science Microbiology Credit: 4.

- CHEM 1120 - General Chemistry II Credit: 4.

- COMM 2025 - Fundamentals of Communication Credit: 3.

- HIST 2020 - Modern United States History Credit: 3.

Total: 14

Junior Year

First Semester

- BIOL 2010 - Human Anatomy and Physiology I Credit: 4.

- SOC 1010 - Introduction to Sociology Credit: 3.

- EXPW 3032 - Exercise Prescription for Fitness and Wellness Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.

- PHED 1002 - Physical Fitness Test Credit: 0.

- PSY 2130 - Life Span Development Psychology Credit: 3.

Total: 16

Second Semester

- BIOL 2020 - Human Anatomy and Physiology II Credit: 4.

- BIOL 3810 - General Genetics Credit: 4.

- EXPW 4810 - Field Experience Credit: 1-4. (Three hours required)

- EXPW 4171 - Exercise and Sport Psychology Credit: 3.

Total: 14

Senior Year

First Semester

- CHEM 3010 - Organic Chemistry I Credit: 4.
 - EXPW 3170 - Motor Learning Credit: 3. or
 - EXPW 3410 - Lifespan Motor Development Credit: 3.
 - EXPW 4420 - Kinesiology Credit: 3.
 - EXPW 4520 - Adapted Physical Activity and Sport Credit: 3.
 - EXPW 4730 - Assessment and Evaluation in Exercise Science Credit: 3.
 - PHED 1002 - Physical Fitness Test Credit: 0. ¹
- Total: 16
Second Semester
- CHEM 3020 - Organic Chemistry II Credit: 4.
 - Elective Credit: 2.
 - EXPW 4440 - Physiology of Exercise Credit: 3.
 - EXPW 4900 - Research Methods in Exercise Science Credit: 3.
 - HEC 2220 - Medical Terminology for the Human Sciences Credit: 1.
- Total: 14
- Exercise Science, Physical Education and Wellness, Sport Administration Concentration, B.S. (Leading to the Bachelor of Science Degree)**

Curriculum

Freshman Year

First Semester

- BIOL 1010 - Introduction to Biology Credit: 4. or
- BIOL 1113 - General Biology I Credit: 4.

- ENGL 1010 - English Composition I Credit: 3.
- MATH Credit: 3.
- EXPW 1021 - Connection to Exercise Science, Physical Education and Wellness Credit: 1.
- EXPW 1022 - Introduction to Exercise Science, Physical Education and Wellness Credit: 2.
- HEC 1030 - Introduction to Nutrition Credit: 2.
- PHED 1002 - Physical Fitness Test Credit: 0. ¹

Total: 15

Second Semester

- BIOL 1020 - Diversity of Life Credit: 4. or
- BIOL 1123 - General Biology II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- EXPW 1150 - Care and Prevention of Athletic Injuries Credit: 3.
- EXPW 2160 - Drug Use and Abuse Credit: 2.
- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 15

Sophomore Year

First Semester

- ECON 2010 - Principles of Microeconomics Credit: 3.
- EXPW 2170 - Introduction to Sport Management Credit: 3.

- EXPW 2200 - Leadership Development in Exercise and Sport Credit: 3.
 - HIST 2010 - Early United States History Credit: 3.
 - Humanities/Fine Arts Elective Credit: 3.
 - PHED 1002 - Physical Fitness Test Credit: 0. ¹
- Total: 15
Second Semester
- ECON 2020 - Principles of Macroeconomics Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- EXPW 2430 - First Aid, Safety and CPR Credit: 2.
- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.

Total: 14

Junior Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ACCT 3720 - Survey of Accounting Credit: 3.
- DS 2810 - Computer Applications in Business Credit: 3.

- Elective Credit: 3.

- EXPW 3170 - Motor Learning Credit: 3.
- PHED 1002 - Physical Fitness Test Credit: 0. ¹

Total: 15

Second Semester

- BMGT 3510 - Management and Organization Behavior Credit: 3.
- EXPW 3310 - Professional Preparation Credit: 1.

- EXPW 3410 - Lifespan Motor Development Credit: 3. or
- Guided Elective Credit: 3.

- FIN 3210 - Principles of Managerial Finance Credit: 3.
- LAW 2810 - Business Legal Environment and Ethics Credit: 3.

- MKT 3400 - Principles of Marketing Credit: 3.

Total: 16

Senior Year

First Semester

- EXPW 4171 - Exercise and Sport Psychology Credit: 3.
- EXPW 4540 - Ethical Issues in Sport Credit: 3.
- EXPW 4560 - Facility Planning and Management Credit: 3.
- EXPW 4570 - Fundraising/Revenue Generation in Sport Credit: 3.

- EXPW 4580 - Current Issues in Sport Management Credit: 3.

- PHED 1002 - Physical Fitness Test Credit: 0. ¹
- Total: 15

Second Semester

- EXPW 4520 - Adapted Physical Activity and Sport Credit: 3. or
- Guided Elective Credit: 3.

- EXPW 4530 - Organization and Administration of Interscholar Athletics Credit: 3.

- EXPW 4550 - Sport Governance Credit: 3.

- EXPW 4810 - Field Experience Credit: 1-4.

- HIST 4470-4479 (5470) - Sports Studies Credit: 3.

Total: 15

Note:

- ¹ Once per academic year while in this major.

Guided Electives

EXPW 3091 OR EXPW 3092

EXPW 3180

EXPW 4032

EXPW 4730 - Assessment and Evaluation in Exercise Science

EXPW 4900 - Research Methods in Exercise Science

JOUR 2200 - Mass Communication in a Changing Society

JOUR 2220 - News Reporting and Copy Editing

JOUR 3400 - Introduction to Broadcast Journalism

Department of Foreign Languages

Foreign Language, French Option 1, B.A. (Leading to the Bachelor of Arts Degree)

A major will consist of a minimum of 30 semester hours in French, including at least 24 semester hours of Upper Division courses. Students who because of superior previous training begin their major courses at the Upper Division level, may substitute up to six semester hours in a second language or related field toward fulfillment of the major requirement. Linguistics 4500 Introduction to Language Description and Analysis is recommended for all Foreign Language majors and may, with approval of the departmental chairperson, be substituted for one Upper Division Course in French for students concentrating in French. It is particularly recommended for those French majors who are also working toward teacher licensure at the secondary school level.

The following courses, which require no foreign language background, may not be used as credit substitutes for required Upper Division Foreign Language courses: FREN 3510; GERM 3520, or GERM 4510; SPAN 3510 or SPAN 3550. They may, however, serve as open electives in any curriculum or as credit substitutes for certain lower division Foreign Language courses.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.

- FREN 2010 - Intermediate French I Credit: 3. ⁱ

- HIST 2210 - Early Western Civilization Credit: 3. or

- HIST 2310 - Early World History Credit: 3.

- MATH Credit: 3.

- Science Credit: 4.

- UNIV 1020 - First-Year Connections Credit: 1. ¹

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.

- FREN 2020 - Intermediate French 2 Credit: 3. ⁱⁱ

- HIST 2220 - Modern Western Civilization Credit: 3. or

- HIST 2320 - Modern World History Credit: 3.

- Science Credit: 4.

- Humanities/Fine Arts Elective Credit: 3. ²

Total: 16

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or

- ENGL 2330 - Topics in World Literature Credit: 3.

- FREN 3010 - Written Communication in French Credit: 3. ⁱⁱⁱ

- HIST 2010 - Early United States History Credit: 3.

- Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or

- ENGL 2330 - Topics in World Literature Credit: 3.

- FREN 3020 - Oral Communication in French Credit: 3.

^{3 iv}

- HIST 2020 - Modern United States History Credit: 3.
- Social/Behavioral Science Elective Credit: 3.
- Elective Credit: 3.

Total: 15

Junior Year

First Semester

- FREN 3110 - Survey of French Literature I Credit: 3.
- FREN 3120 - Survey of French Literature II Credit: 3.

- HIST 4550 (5550) - French Revolution and Napoleon Credit: 3. or

- HIST 4630 - History of France Credit: 3.

Or

- two course lower level sequence in another foreign language taught in the foreign language

- Electives Credit: 6.

Total: 15

Second Semester

- FREN 3112 - Culture and Civilization of France Credit: 3.

- HIST 4530 (5530) - Renaissance and Reformation Credit: 3. or

- HIST 4540 (5540) - Absolutism and Enlightenment Credit: 3. or

- HIST 4560 (5560) - 19th Century Europe Credit: 3. or

- HIST 4570 (5570) - World War II and the Cold War Credit: 3.

Or

- two course lower level sequence in another foreign language taught in the foreign language

- Electives Credit: 10.

Total: 16

Senior Year

First Semester

- FREN 3100 - French Phonetics Credit: 3.

- FREN 3200 - Business French Credit: 3. or

- FREN 4810 (5810) - Special Topics in French Credit: 3. or

- FREN 4910 - Directed Studies in French Credit: 1-6 per semester. Maximum 16. (Three hours required)

- Electives Credit: 9.

Total: 15

Second Semester

- FREN 4920 - Senior Capstone Credit: 3. ⁴

- Electives Credit: 9.

Total: 12

Note:

*Students are strongly encouraged to take six hours of study abroad courses.

¹This course not included in 120-hour curriculum.

²ART 1035, GERM 2520, MUS 1030, SPAN 2510, SPAN 2550, THEA 1030 or PHIL 1030

³This course is not open to students with native or near native fluency in French. Majors with native or near native fluency will substitute a different upper-level course for this one.

⁴Students pursuing Teacher Licensure must take FREN 4925: Teaching Licensure Senior Capstone instead of FREN 4920: Senior Capstone.

ⁱ Foreign Language majors must pass FREN 2010 with a minimum of C or better in order to enroll in FREN 2020.

ⁱⁱ Foreign Language majors must pass FREN 2020 with a minimum of C or better in order to enroll in FREN 3010.

ⁱⁱⁱ Foreign Language majors must pass FREN 3010 with a minimum of C or better in order to enroll in subsequent upper-division French courses.

^{iv} Foreign Language majors must pass FREN 3020 with a minimum of C or better in order to enroll in subsequent upper-division French courses.

Foreign Language, French Option 2, B.A. (Leading to the Bachelor of Arts Degree)

This option is only for students who concurrently earn a B.S. degree in Engineering, Industrial Technology, Computer Science, Mathematics, or the physical or biological sciences.

A major will consist of a minimum of 30 semester hours in French, including at least 24 semester hours of Upper Division courses. Students who because of superior previous training begin their major courses at the Upper Division level, may substitute up to six semester hours in a second language or related field toward fulfillment of the major requirement. Linguistics 4500 Introduction to Language Description and Analysis is recommended for all Foreign Language majors and may, with approval of the departmental chairperson, be substituted for one Upper Division Course in French for students concentrating in French. It is particularly recommended for those French majors who are also working toward teacher licensure at the secondary school level.

The following courses, which require no foreign language background, may not be used as credit substitutes for required Upper Division Foreign Language courses: FREN 3510; GERM 3520 or GERM 4510; SPAN 3510 or SPAN 3550. They may, however, serve as open electives in any curriculum or as credit substitutes for certain lower division Foreign Language courses.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- FREN 2010 - Intermediate French I Credit: 3. ⁱ

- HIST 2210 - Early Western Civilization Credit: 3. ² or

- HIST 2310 - Early World History Credit: 3.

- MATH Credit: 3.
- Natural Science Credit: 4.
- UNIV 1020 - First-Year Connections Credit: 1. ¹

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- FREN 2020 - Intermediate French 2 Credit: 3. ⁱⁱ

- HIST 2220 - Modern Western Civilization Credit: 3. ²
- or
- HIST 2320 - Modern World History Credit: 3.

- Natural Science Credit: 4.

Total: 13

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- FREN 3010 - Written Communication in French Credit: 3. ⁱⁱⁱ

- HIST 2010 - Early United States History Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Second Semester

- Elective Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- FREN 3020 - Oral Communication in French Credit: 3. ^{iv}

- HIST 2020 - Modern United States History Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Junior Year

First Semester

- Electives Credit: 9.
- FREN 3110 - Survey of French Literature I Credit: 3.
- FREN 3120 - Survey of French Literature II Credit: 3.

Total: 15

Second Semester

- Electives Credit: 13.
- FREN 3112 - Culture and Civilization of France Credit: 3.

Total: 16

Senior Year

First Semester

- Electives Credit: 12.
- FREN 3100 - French Phonetics Credit: 3.

Total: 15

Second Semester

- Electives Credit: 9.

- FREN 3200 - Business French Credit: 3. or
- FREN 4810 (5810) - Special Topics in French Credit: 3. or
- FREN 4910 - Directed Studies in French Credit: 1-6 per semester. Maximum 16. (Three hours required)

- FREN 4920 - Senior Capstone Credit: 3.

Total: 15

Note:

* Students are strongly encouraged to take at least six hours in a study-abroad program.

¹ This course not included in 120-hour curriculum.

² For the humanities requirement in this option, students must take one English literature course and may use HIST 2210-HIST 2220 for six hours of humanities credit, or they may take two English literature courses and one from the following: ART 1035, GERM 2520, MUS 1030, SPAN 2510, SPAN 2550, THEA 1030 or PHIL 1030.

³ This course is not open to students with native or near native fluency in French. Majors with native or near native fluency will substitute a different upper-level course for this one.

ⁱ Foreign Language majors must pass FREN 2010 with a minimum of C or better in order to enroll in FREN 2020.

ⁱⁱ Foreign Language majors must pass FREN 2020 with a minimum of C or better in order to enroll in FREN 3010.

ⁱⁱⁱ Foreign Language majors must pass FREN 3010 with a minimum of C or better in order to enroll in subsequent upper-division French courses.

^{iv} Foreign Language majors must pass FREN 3020 with a minimum of C or better in order to enroll in subsequent upper-division French courses.

Foreign Language, German Option 1, B.A. (Leading to the Bachelor of Arts Degree)

A major will consist of a minimum of 30 semester hours in German, including at least 24 semester hours of Upper Division courses. Students who because of superior previous training begin their major courses at the Upper Division level may substitute up to six semester hours in a second language or related field toward fulfillment of the major requirement. Linguistics 4500 Introduction to Language Description and Analysis is recommended for all Foreign Language majors and

may, with approval of the departmental chairperson, be substituted for one Upper Division Course in German for students concentrating in German. It is particularly recommended for those German majors who are also working toward teacher licensure at the secondary school level.

The following courses, which require no foreign language background, may not be used as credit substitutes for required Upper Division Foreign Language courses: FREN 3510; GERM 3520, or GERM 4510; SPAN 3510 or SPAN 3550. They may, however, serve as open electives in any curriculum or as credit substitutes for certain lower division Foreign Language courses.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- GERM 2010 - Intermediate German I Credit: 3. ⁱ

- HIST 2210 - Early Western Civilization Credit: 3. or
- HIST 2310 - Early World History Credit: 3.

- MATH Credit: 3.
- Natural Science Credit: 4.
- UNIV 1020 - First-Year Connections Credit: 1. ¹

Total: 17

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- GERM 2020 - Intermediate German 2 Credit: 3. ⁱⁱ

- HIST 2220 - Modern Western Civilization Credit: 3. or
- HIST 2320 - Modern World History Credit: 3.

- Humanities/Fine Arts Elective Credit: 3. ²
- Natural Science Credit: 4.

Total: 16

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- GERM 3010 - Written Communication in German Credit: 3. ⁱⁱⁱ

- HIST 2010 - Early United States History Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Second Semester

- Electives Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- GERM 3020 - Oral Communication in German Credit: 3. ^{iv}

- HIST 2020 - Modern United States History Credit: 3.
- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Junior Year

First Semester

- Electives Credit: 6.
- GERM 3112 - German Civilization and Culture Credit: 3.
- GERM 3150 - Introduction to German Literature Credit: 3.
- HIST 4640 - History of Modern Germany Credit: 3.

Total: 15

Second Semester

- Electives Credit: 9.

- GERM 3200 - Business German Credit: 3. or
- GERM 4810 (5810) - Special Topics in German Credit: 3. or
- GERM 4910 - Directed Studies in German Credit: 1-6 per semester. Maximum 16. (Three hours required) And one of the following:

- HIST 4530 (5530) - Renaissance and Reformation Credit: 3.
- HIST 4540 (5540) - Absolutism and Enlightenment Credit: 3.
- HIST 4550 (5550) - French Revolution and Napoleon Credit: 3.
- HIST 4560 (5560) - 19th Century Europe Credit: 3.
- HIST 4570 (5570) - World War II and the Cold War Credit: 3.

or

- Two courses lower level sequence in another foreign language taught in the foreign language

Total: 15

Senior Year

First Semester

- Electives Credit: 12.

- GERM 3200 - Business German Credit: 3. or
- GERM 4810 (5810) - Special Topics in German Credit: 3. or
- GERM 4910 - Directed Studies in German Credit: 1-6 per semester. Maximum 16. (Three hours required)

Total: 15

Second Semester

- Electives Credit: 7.

- GERM 3200 - Business German Credit: 3. or
- GERM 4810 (5810) - Special Topics in German Credit: 3. or
- GERM 4910 - Directed Studies in German Credit: 1-6 per semester. Maximum 16. (Three hours required) ³

- GERM 4920 - Senior Capstone Credit: 3.
Total: 13

Note:

* Students are strongly encouraged to take at least six hours in a study-abroad program.

¹ This course not included in 120-hour curriculum.

² ART 1035, FREN 2510, MUS 1030, SPAN 2510, SPAN 2550, THEA 1030 or PHIL 1030

³ Students pursuing Teacher Licensure must take GERM 4925: Teaching Licensure Senior Capstone instead of GERM 4920: Senior Capstone.

ⁱ Foreign Language majors must pass GERM 2010 with a minimum of C or better in order to enroll in GERM 2020.

ⁱⁱ Foreign Language majors must pass GERM 2020 with a minimum of C or better in order to enroll in GERM 3010.

ⁱⁱⁱ Foreign Language majors must pass GERM 3010 with a minimum of C or better in order to enroll in subsequent upper-division German courses.

^{iv} Foreign Language majors must pass GERM 3020 with a minimum of C or better in order to enroll in subsequent upper-division German courses.

Foreign Language, German Option 2, B.A. (Leading to the Bachelor of Arts Degree)

This option is only for students who concurrently earn a B.S. degree in Engineering, Industrial Technology, Computer Science, Mathematics, or the physical or biological sciences.

A major will consist of a minimum of 30 semester hours in German, including at least 24 semester hours of Upper Division courses. Students who because of superior previous training begin their major courses at the Upper Division level may substitute up to six semester hours in a second language or related field toward fulfillment of the major requirement. Linguistics 4500 Introduction to Language Description and Analysis is recommended for all Foreign Language majors and may, with approval of the departmental chairperson, be substituted for one Upper Division Course in German for students concentrating in German. It is particularly recommended for those German majors who are also working toward teacher licensure at the secondary school level.

The following courses, which require no foreign language background, may not be used as credit substitutes for required Upper Division Foreign Language courses: FREN 3510; GERM 3520, or GERM 4510; SPAN 3510 or SPAN 3550. They may, however, serve as open electives in any curriculum or as credit

substitutes for certain lower division Foreign Language courses.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- GERM 2010 - Intermediate German I Credit: 3. ⁱ

- HIST 2210 - Early Western Civilization Credit: 3. ² or
- HIST 2310 - Early World History Credit: 3.

- Natural Science Credit: 4.

- UNIV 1020 - First-Year Connections Credit: 1. ¹

Total: 14

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- GERM 2020 - Intermediate German 2 Credit: 3. ⁱⁱ

- HIST 2220 - Modern Western Civilization Credit: 3. ² or

- HIST 2320 - Modern World History Credit: 3.

- MATH Credit: 3.

- Natural Science Credit: 4.

Total: 16

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- GERM 3010 - Written Communication in German Credit: 3. ⁱⁱⁱ

- HIST 2010 - Early United States History Credit: 3.

- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Second Semester

- Elective Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- GERM 3020 - Oral Communication in German Credit: 3. ^{iv}

- HIST 2020 - Modern United States History Credit: 3.

- Social/Behavioral Sciences Elective Credit: 3.

Total: 15

Junior Year

First Semester

- Electives Credit: 9.
- GERM 3112 - German Civilization and Culture Credit: 3.

- GERM 3200 - Business German Credit: 3. or
- GERM 4810 (5810) - Special Topics in German Credit: 3. or
- GERM 4910 - Directed Studies in German Credit: 1-6 per semester. Maximum 16. (Three hours required)

Total: 15

Second Semester

- Elective Credit: 12.
- GERM 3150 - Introduction to German Literature Credit: 3.

Total: 15

Senior Year

First Semester

- Electives Credit: 12.

- GERM 3200 - Business German Credit: 3. or
- GERM 4810 (5810) - Special Topics in German Credit: 3. or
- GERM 4910 - Directed Studies in German Credit: 1-6 per semester. Maximum 16. (Three hours required)

Total: 15

Second Semester

- Electives Credit: 10.

- GERM 3200 - Business German Credit: 3. or
- GERM 4810 (5810) - Special Topics in German Credit: 3. or
- GERM 4910 - Directed Studies in German Credit: 1-6 per semester. Maximum 16. (Three hours required)

- GERM 4920 - Senior Capstone Credit: 3.

Total: 16

Note:

*Students are strongly encouraged to take at least six hours in a study-abroad program.

¹This course not included in 120-hour curriculum.

²For the humanities requirement in this option, students must take one English literature course and may use HIST 2210-HIST 2220 for six hours of humanities credit, or they may take two English literature courses and one from the following: ART 1035, FREN 2510, MUS 1030, SPAN 2510, SPAN 2550, THEA 1030 or PHIL 1030.

ⁱ Foreign Language majors must pass GERM 2010 with a minimum of C or better in order to enroll in GERM 2020.

ⁱⁱ Foreign Language majors must pass GERM 2020 with a minimum of C or better in order to enroll in GERM 3010.

ⁱⁱⁱ Foreign Language majors must pass GERM 3010 with a minimum of C or better in order to enroll in subsequent upper-division German courses.

^{iv} Foreign Language majors must pass GERM 3020 with a minimum of C or better in order to enroll in subsequent upper-division German courses.

**Foreign Language, Spanish Option 1, B.A.
(Leading to the Bachelor of Arts Degree)**

A major will consist of a minimum of 30 semester hours in Spanish, including at least 24 semester hours of Upper Division courses. Students who because of superior previous training begin their major courses at the Upper Division level may substitute up to six semester hours in a second language or related field toward fulfillment of the major requirement. Linguistics 4500 Introduction to Language Description and Analysis is recommended for all Foreign Language majors and may, with approval of the departmental chairperson, be substituted for one Upper Division Course in Spanish for students concentrating in Spanish. It is particularly recommended for those Spanish majors who are also working toward teacher licensure at the secondary school level.

The following courses, which require no foreign language background, may not be used as credit substitutes for required Upper Division Foreign Language courses; FREN 3510; GERM 3520, or GERM 4510; SPAN 3510 or SPAN 3550. They may, however, serve as open electives in any curriculum or as credit substitutes for certain lower division Foreign Language courses.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- SPAN 2010 - Intermediate Spanish I Credit: 3. ⁱ

- HIST 2210 - Early Western Civilization Credit: 3. or
- HIST 2310 - Early World History Credit: 3.

- MATH Credit: 3.
- Natural Science Credit: 4.
- UNIV 1020 - First-Year Connections Credit: 1. ¹

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- SPAN 2020 - Intermediate Spanish 2 Credit: 3. ⁱⁱ

- HIST 2220 - Modern Western Civilization Credit: 3. or
- HIST 2320 - Modern World History Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.²
 - Natural Science Credit: 4.
- Total: 16
Sophomore Year
First Semester
- COMM 2025 - Fundamentals of Communication Credit: 3.
- or
- ENGL 2130 - Topics in American Literature Credit: 3.
 - ENGL 2235 - Topics in British Literature Credit: 3. or
 - ENGL 2330 - Topics in World Literature Credit: 3.
- or
- HIST 2010 - Early United States History Credit: 3.
 - Social/Behavioral Science Elective Credit: 3.
 - SPAN 3010 - Written Communication in Spanish Credit: 3. ⁱⁱⁱ
- Total: 15
Second Semester
- ENGL 2130 - Topics in American Literature Credit: 3.
 - ENGL 2235 - Topics in British Literature Credit: 3. or
 - ENGL 2330 - Topics in World Literature Credit: 3.
- or
- HIST 2020 - Modern United States History Credit: 3.
 - Social/Behavioral Science Elective Credit: 3.
 - Elective Credit: 3.
 - SPAN 3020 - Oral Communication in Spanish Credit: 3. ^{iv}
- Total: 15
Junior Year
First Semester
- HIST 4790-4799 (5790) - Latin American Studies Credit: 3.
- or
- two course lower level sequence in another foreign language taught in the foreign language
- or
- SPAN 3200 - Spanish for Business I Credit: 3.
 - SPAN 4030 (5030) - Advanced Spanish Conversation Credit: 3.
 - SPAN 4810 - Special Topics in Spanish Credit: 3.
 - SPAN 4910 - Directed Studies Credit: 1-6 per semester. Maximum 16. (Three credit hours required)
- or
- SPAN 4010 (5010) - Introduction to the Literature of Spain
 - SPAN 4020 (5020) - Introduction to the Literature of Spanish America
 - SPAN 4110 (5110) - Culture and Civilization of Spain
 - SPAN 4120 (5120) - Culture and Civilization of Spanish America
(if not already taken)

- SPAN 4010 (5010) - Introduction to the Literature of Spain Credit: 3. or
- SPAN 4020 (5020) - Introduction to the Literature of Spanish America Credit: 3.

- Electives Credit: 6.

Total: 15

Second Semester

- HIST 3710 - Survey of Spanish History Credit: 3.
- or
- two course lower level sequence in another foreign language taught in the foreign language

- SPAN 4110 (5110) - Culture and Civilization of Spain Credit: 3. or
- SPAN 4120 (5120) - Culture and Civilization of Spanish America Credit: 3.

- Electives Credit: 9.

Total: 18

Senior Year

First Semester

- Electives Credit: 10.

Any course not already taken from the following

- SPAN 3200 - Spanish for Business I Credit: 3.
- SPAN 4010 (5010) - Introduction to the Literature of Spain Credit: 3.
- SPAN 4020 (5020) - Introduction to the Literature of Spanish America Credit: 3.
- SPAN 4030 (5030) - Advanced Spanish Conversation Credit: 3.
- SPAN 4110 (5110) - Culture and Civilization of Spain Credit: 3.
- SPAN 4120 (5120) - Culture and Civilization of Spanish America Credit: 3.
- SPAN 4810 - Special Topics in Spanish Credit: 3.
- SPAN 4910 - Directed Studies Credit: 1-6 per semester. Maximum 16. (Required Credit: 3)

Total: 13

Second Semester

- Electives Credit: 9.
- SPAN 4920 - Senior Capstone Credit: 3. ⁴

Total: 12

Note:

* Students are strongly encouraged to take at least six hours in a study-abroad program.

¹This course not included in 120-hour curriculum.

²ART 1035, FREN 2510, GERM 2520, MUS 1030, THEA 1030 or PHIL 1030.

³This course is not open to students with native or native fluency in Spanish. Majors with native or near native fluency in Spanish will substitute a different upper level course for this one.

⁴Students pursuing Teacher Licensure must take SPAN 4925: Teaching Licensure Senior Capstone instead of SPAN 4920: Senior Capstone.

ⁱ Foreign Language majors must pass SPAN 2010 with a minimum of C or better in order to enroll in SPAN 2020.

ⁱⁱ Foreign Language majors must pass SPAN 2020 with a minimum of C or better in order to enroll in SPAN 3010.

ⁱⁱⁱ Foreign Language majors must pass SPAN 3010 with a minimum of C or better in order to enroll in subsequent upper-division Spanish courses.

^{iv} Foreign Language majors must pass SPAN 3020 with a minimum of C or better in order to enroll in subsequent upper-division Spanish courses.

Foreign Language, Spanish Option 2, B.A. (Leading to the Bachelor of Arts Degree)

This option is only for students who concurrently earn a B.S. degree in Engineering, Industrial Technology, Computer Science, Mathematics, or the physical or biological sciences.

A major will consist of a minimum of 30 semester hours in Spanish, including at least 24 semester hours of Upper Division courses. Students who because of superior previous training begin their major courses at the Upper Division level may substitute up to six semester hours in a second language or related field toward fulfillment of the major requirement. Linguistics 4500 Introduction to Language Description and Analysis is recommended for all Foreign Language majors and may, with approval of the departmental chairperson, be substituted for one Upper Division Course in Spanish for students concentrating in Spanish. It is particularly recommended for those Spanish majors who are also working toward teacher licensure at the secondary school level.

The following courses, which require no foreign language background, may not be used as credit substitutes for required Upper Division Foreign Language courses; FREN 3510; GERM 3520 or GERM 4510; SPAN 3510 or SPAN 3550. They may, however, serve as open electives in any curriculum or as credit substitutes for certain lower division Foreign Language courses.

Curriculum Freshman Year First Semester

- ENGL 1010 - English Composition I Credit: 3.
- HIST 2210 - Early Western Civilization Credit: 3. ² or
- HIST 2310 - Early World History Credit: 3.

- MATH Credit: 3.
- Natural Science Credit: 4.
- SPAN 2010 - Intermediate Spanish I Credit: 3. ⁱ
- UNIV 1020 - First-Year Connections Credit: 1. ¹

Total: 17

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- HIST 2220 - Modern Western Civilization Credit: 3. ² or
- HIST 2320 - Modern World History Credit: 3.

- Natural Science Credit: 4.
- SPAN 2020 - Intermediate Spanish 2 Credit: 3. ⁱⁱ

Total: 13

Sophomore Year First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3. ²

- Elective Credit: 3.
- HIST 2010 - Early United States History Credit: 3.
- Social/Behavioral Science Elective Credit: 3.
- SPAN 3010 - Written Communication in Spanish Credit: 3. ⁱⁱⁱ

Total: 15

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3.
- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3. ²

- HIST 2020 - Modern United States History Credit: 3.
- Social/Behavioral Science Elective Credit: 3.
- SPAN 3020 - Oral Communication in Spanish Credit: 3. ^{iv}

Total: 15

Junior Year

First Semester

- SPAN 4010 (5010) - Introduction to the Literature of Spain Credit: 3. or
- SPAN 4020 (5020) - Introduction to the Literature of Spanish America Credit: 3.

- Electives Credit: 9.

Any three credits from:

- SPAN 3200 - Spanish for Business I Credit: 3.
- SPAN 4030 (5030) - Advanced Spanish Conversation Credit: 3.

- SPAN 4810 - Special Topics in Spanish Credit: 3.
- SPAN 4910 - Directed Studies Credit: 1-6 per semester. Maximum 16. (Three credit hours required)

Total: 15

Second Semester

- SPAN 4110 (5110) - Culture and Civilization of Spain Credit: 3. or
- SPAN 4120 (5120) - Culture and Civilization of Spanish America Credit: 3.

- Electives Credit: 9.

Any three credits from:

- SPAN 3200 - Spanish for Business I Credit: 3.
- SPAN 4030 (5030) - Advanced Spanish Conversation Credit: 3.
- SPAN 4810 - Special Topics in Spanish Credit: 3.
- SPAN 4910 - Directed Studies Credit: 1-6 per semester. Maximum 16. (Three credit hours required)

Total: 15

Senior Year

First Semester

- SPAN 4920 - Senior Capstone Credit: 3.
- Electives Credit: 9.

Any course not already taken from the following

- SPAN 3200 - Spanish for Business I Credit: 3.
- SPAN 4010 (5010) - Introduction to the Literature of Spain Credit: 3.
- SPAN 4020 (5020) - Introduction to the Literature of Spanish America Credit: 3.
- SPAN 4110 (5110) - Culture and Civilization of Spain Credit: 3.
- SPAN 4120 (5120) - Culture and Civilization of Spanish America Credit: 3.

Total: 15

Second Semester

- Electives Credit: 16.

Total: 16

Note:

*Students are strongly encouraged to take at least six hours in a study-abroad program.

¹This course not included in 120-hour curriculum.

²For the humanities requirement in this option, students must take one English literature course and may use HIST 2210-2220 for six hours of humanities credit, or they may take two English literature courses and one from the following: ART 1035, FREN 2510, GERM 2520, MUS 1030, THEA 1030 or PHIL 1030.

³This course is not open to students with native or native fluency in Spanish. Majors with native or near native fluency in Spanish will substitute a different upper level course for this one.

ⁱ Foreign Language majors must pass SPAN 2010 with a minimum of C or better in order to enroll in SPAN 2020.

ⁱⁱ Foreign Language majors must pass SPAN 2020 with a minimum of C or better in order to enroll in SPAN 3010.

ⁱⁱⁱ Foreign Language majors must pass SPAN 3010 with a minimum of C or better in order to enroll in subsequent upper-division Spanish courses.

^{iv} Foreign Language majors must pass SPAN 3020 with a minimum of C or better in order to enroll in subsequent upper-division Spanish courses.

Department of History

History, B.A.

(Leading to the Bachelor of Arts Degree)

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- Foreign Language Credit: 3.⁴

- HIST 2210 - Early Western Civilization Credit: 3. or
- HIST 2310 - Early World History Credit: 3.

- MATH Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- Foreign Language Credit: 3.⁴

- HIST 2220 - Modern Western Civilization Credit: 3. or
- HIST 2320 - Modern World History Credit: 3.

- HIST 3410 - Introduction to Historical Methods Credit: 3.

- Social/Behavioral Science Elective Credit: 3.

Total: 15

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- Foreign Language Credit: 3.⁴

- HIST 2010 - Early United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.

- Natural Science Credit: 4.

Total: 16

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- Foreign Language Credit: 3.⁴
- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- Natural Science Credit: 4.

Total: 16

Junior Year

First Semester

- American History (Upper Division) Credit: 3.¹
- European History (Upper Division) Credit: 3.²
- ENGL, JOUR, LING, SPCH, THEA or WEBD (Upper Division) Credit: 3.
- Elective or minor Credit: 3.
- Foreign Language Credit: 3.⁴

Total: 15

Second Semester

- CJ, POLS, SOC, SW, PHIL, RELS or PSY (Upper Division) Credit: 3.
- Elective or minor Credit: 6.
- Foreign Language Credit: 3.⁴
- World History (Upper Division) Credit: 3.³

Total: 15

Senior Year

First Semester

- Electives or minor Credit: 9.
- HIST 4990-4999 - Senior Seminar Credit: 3.
- HIST (Upper Division) Credit: 3.

Total: 15

Second Semester

- Electives or minor Credit: 7.
- HIST (Upper Division) Credit: 6.

Total: 13

Note:

¹American History Upper Division courses include 3100, 3360, 3900, 4010-4310, 4340-4390, 4440-4449.

²European History Upper Division courses include 3550, 3560, 3710, 4510-4690.

³World History Upper Division include 4440-4449, 4620, 4710-4790, 4880.

⁴Foreign Language for the B.A. degree: Proficiency level in one language to include both (1) and (2) below:

- Proficiency through the 2020 level in one language and
- Six semester hours of upper division courses in the same language.

Bachelor of Science

History, B.S. (Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- HIST 2210 - Early Western Civilization Credit: 3. or
- HIST 2310 - Early World History Credit: 3.

- MATH Credit: 3.

- Natural Science Credit: 4.⁷

- UNIV 1020 - First-Year Connections Credit: 1.

Total: 14

Second Semester

- Elective Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.

- HIST 2220 - Modern Western Civilization Credit: 3. or
- HIST 2320 - Modern World History Credit: 3.

- HIST 3410 - Introduction to Historical Methods Credit: 3.

- Natural Science Credit: 4.⁷

Total: 16

Sophomore Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.
- Elective or minor Credit: 3.
- Foreign Language, any course (2-3 credits)¹
- HIST 2010 - Early United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

- Foreign Language 1020 (3 credits)²

- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

- Social/Behavioral Science Elective Credit: 3.

Total: 17

Second Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- Foreign Language 1020 (3 credits)²

- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

- Social/Behavioral Science Elective Credit: 3.

Total: 15

Junior Year

First Semester

- American History (Upper Division) Credit: 3.³
- European History (Upper Division) Credit: 3.⁴
- Foreign Language any course (2-3 credits)⁶

- Minor Credit: 3.
- Natural Science Credit: 4.⁷

Total: 15-16

Second Semester

- World History (Upper Division) Credit: 3.⁵
- CJ, POLS, SOC, SW, PHIL, RELS or PSY (Upper Division) Credit: 3.
- ENGL, JOUR, LING, SPCH, THEA or WEBD (Upper Division) Credit: 3.
- Natural Science Credit: 3.⁷
- Minor Credit: 3.

Total: 15

Senior Year

First Semester

- HIST 4990-4999 - Senior Seminar Credit: 3.
- HIST (Upper Division) Credit: 3.
- Minor (Upper Division) Credit: 3.
- Electives Credit: 6.

Total: 15

Second Semester

School of Human Ecology

Human Ecology, Child Development and Family Relations Concentration, B.S.H.E. (Leading to the Bachelor of Science Degree, Non-Licensure)

The Child Development and Family Relations concentration offers a holistic, ecological and integrative perspective on children and families. Course work provides in-depth knowledge to prepare graduates for careers working with people across the lifespan in a variety of human service settings including: government agencies, children's services, cooperative extension and others.

Curriculum

Freshman Year

First Semester

- ART 1035 - Introduction to Art Credit: 3. or
- MUS 1030 - Music Appreciation Credit: 3.
- ENGL 1010 - English Composition I Credit: 3.
- Natural Science Credit: 4.¹
- MATH Credit: 3.
- HEC 1030 - Introduction to Nutrition Credit: 2.
- AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1.

Total: 16

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- SOC 1010 - Introduction to Sociology Credit: 3.

- HIST (Upper Division) Credit: 6.
- Minor (Upper Division) Credit: 3.
- Elective Credit: 4.

Total: 13

Note:

- ¹MATH 1910 may substitute for this requirement.
- ²MATH 1920 may substitute for this requirement.
- ³American History Upper Division courses include; 3100, 3360, 3900, 4010-4310, 4340-4390, 4440-4449.
- ⁴European History Upper Division courses include; 3550, 3560, 3710, 4510-4690.
- ⁵World History Upper Division courses include; 4440-4449, 4620, 4710-4790.
- ⁶MATH 2110 may substitute for this requirement.
- ⁷Fifteen credit hours of Science with at least eight credit hours completed in the same discipline. HIST 3900, HIST 4290 (5290), HIST 4810 (5810) or MATH 4610 (5610) may substitute for three of the 15 total credit hours.

- Natural Science Credit: 4.¹
- HEC 1005 - Introduction to Human Ecology Credit: 1.
- HEC 1010 - Life Span Development Credit: 3.

Total: 14

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- HIST 2010 - Early United States History Credit: 3.
- AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.
- CFS 2400 - Children with Special Needs Credit: 3.
- HEC 2065 - Families in Society Credit: 3.
- HEC 2510 - Foundations of Play Credit: 3.

Total: 16

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- HIST 2020 - Modern United States History Credit: 3.
- PSY 1030 - Introduction to Psychology Credit: 3.
- HEC 2200 - Development of Young Children: Conception to Age 6 Credit: 3.

Total: 12

Junior Year

First Semester

- Humanities/fine Arts Elective Credit: 3.
- EXPW 2150 - Human Sexuality Credit: 3. or
- LIST 3220 - Intimate Relationships Credit: 3.
- HEC 3011 - Consumer Economics Credit: 3.
- HEC 3100 - Intercultural Competence Credit: 3.
- HEC 3500 - Development: Middle Childhood/Adolescence Credit: 3.
- AGHE 3000 - (WSL2) Leadership and Service Credit: 3. or
- AGHE 3200 - Study Abroad Exploration Credit: 1-6. or
- AGHE 3275 - Research in Agriculture and Human Ecology Credit: 3. or
- Total: 18
- Second Semester
- HEC 3066 - Family Violence across the Lifespan Credit: 3.
- HEC 3290 - Nutrition through the Life Cycle Credit: 3.
- HEC 3520 - Parent Education and Child Guidance Credit: 2.
- HEC 3565 - Loss and Bereavement for Children and Families Credit: 3.
- HEC 3700 - Development: Young Adulthood/Aging Credit: 3.
- HEC 4065 - Social Policy for Children and Families Credit: 3.
- Total: 17
- Senior Year
- First Semester
- AGHE 4500 - Senior Seminar Credit: 1.
- ECSP 4300 (5300) - Assessment of Young Children Credit: 3.
- HEC 3660 - Interpersonal Relationships Credit: 3.
- HEC 4600 - Theories in Family Development and Relationships Credit: 3.
- HEC 4610 - Families: Normative/Catastrophic Issues Credit: 3.
- Total: 13
- Second Semester
- HEC 4630 - Family Life Education Credit: 3.
- HEC 4910 - Internship in Child Development and Family Relations Credit: 6, 8, 12. (Six credit hours required)
- Elective Credit: 2.
- Upper-Division Elective Credit: 3.
- Total: 14
- Note:

¹Select 8 hours of TTU General Education approved Natural Science courses.

²The School of Human Ecology, Child Development and Family Relations (CDFR) concentration has met the standards and criteria required for the Provisional Certified Family Life Educator (CFLE) designation from the National Council on Family Relations (NCFR). Beginning in Fall 2016, students who graduate from the School of Human Ecology CDFR curriculum (and have met all CFLE course requirements) now qualify to complete an abbreviated CFLE application process.

This program approval does not imply accreditation, but recognizes the inclusion of relevant course work for each of the ten family life content areas needed for the Provisional Certified Family Life Educator designation.

³AGHE 1020 not required for transfer students with more than 12 hours.

Human Ecology, Child Life Concentration, B.S.H.E. (Leading to the Bachelor of Science Degree)

The Child Life program, a gateway to the Certified Child Life Specialist (CCLS) credential, is coordinated with the Association of Child Life Professionals programmatic and educational standards for the child life practitioner. Application to the Child Life program at Tennessee Technological University is required and should be made in the second semester of sophomore year after completing HEC 2250 and while enrolled in HEC 2550. The components of eligibility to sit for the Child Life Professional Certification Examination are:

- Baccalaureate degree
 - Complete 10 college courses in specific content areas
 - Including child life content taught by a Certified Child Life Specialist
 - Child Life Clinical Internship (600 hours under the direct supervision of a Certified Child Life Specialist)
- For more details regarding eligibility requirements, please see the Association of Child Life Professional's website at childlife.org

Curriculum:

Freshman Year

First Semester

- AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1.
- ART 1035 - Introduction to Art Credit: 3. or
- MUS 1030 - Music Appreciation Credit: 3.

- ENGL 1010 - English Composition I Credit: 3.
- MATH 1530 - Introductory Statistics Credit: 3.
- HEC 1010 - Life Span Development Credit: 3.
- HIST 2010 - Early United States History Credit: 3.

Total: 16

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
 - PC 2500 - Communicating in the Professions Credit: 3.
- Total: 16
- Sophomore Year
- First Semester
- ENGL 1020 - English Composition II Credit: 3.
 - HEC 1005 - Introduction to Human Ecology Credit: 1.
 - Humanities/Fine Arts Elective Credit: 3.
 - PSY 1030 - Introduction to Psychology Credit: 3.
 - SOC 1010 - Introduction to Sociology Credit: 3.
- Total: 16
- Second Semester
- AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.
 - BIOL 2010 - Human Anatomy and Physiology I Credit: 4.
 - CFS 2400 - Children with Special Needs Credit: 3.
 - HEC 2020 - Nutrition for Health Sciences Credit: 3.
 - HEC 2220 - Medical Terminology for the Human Sciences Credit: 1.
 - HEC 2250 - Child Life: Theory and Practice Credit: 3.
- Total: 15
- Second Semester
- BIOL 2020 - Human Anatomy and Physiology II Credit: 4.
 - HIST 2020 - Modern United States History Credit: 3.
 - HEC 2065 - Families in Society Credit: 3.
 - HEC 2200 - Development of Young Children: Conception to Age 6 Credit: 3.
 - HEC 2550 - Children in Health Care Credit: 3.
- Total: 16
- Junior Year
- First Semester
- AGHE 3275 - Research in Agriculture and Human Ecology Credit: 3.
 - HEC 2510 - Foundations of Play Credit: 3.
 - HEC 3500 - Development: Middle Childhood/Adolescence Credit: 3.
 - HEC 3520 - Parent Education and Child Guidance Credit: 2.
 - HEC 3550 - Child Life Assessment of Children and Families Credit: 3.
 - HEC 3591 - Introduction to Child Life Clinical Experience Credit: 2.
- Total: 16
- Second Semester
- ENGL 2130 - Topics in American Literature Credit: 3. or
 - ENGL 2235 - Topics in British Literature Credit: 3. or
 - ENGL 2330 - Topics in World Literature Credit: 3.
- BIOL 3700 - Humanism in Medicine Credit: 3.
 - HEC 3560 - Child Life Intervention Strategies Credit: 3.

- HEC 3565 - Loss and Bereavement for Children and Families Credit: 3.
 - HEC 3570 - Child Life Practicum Credit: 1.
 - HEC 3700 - Development: Young Adulthood/Aging Credit: 3.
- Total: 16
- Senior Year
- First Semester
- AGHE 4500 - Senior Seminar Credit: 1.
 - HEC 3011 - Consumer Economics Credit: 3.
 - HEC 4550 - Research Methods and Professional Aspects of Child Life Credit: 3.
 - HEC 4600 - Theories in Family Development and Relationships Credit: 3.
 - HEC 4610 - Families: Normative/Catastrophic Issues Credit: 3.
 - NURS 3050 - Pediatric Illnesses and Related Care Credit: 1.
- Total: 14
- Second Semester
- HEC 4590 - Child Life Clinical Experience Credit: 12.
- Total: 12
- Note:

In order to graduate with a B.S. degree, Human Ecology, concentration Child Life, the following requirements must be completed prior to graduation.

1. Students must be accepted into and successfully complete a Child Life Practicum under the direct supervision of a Certified Child Life Specialist. The practicum course may be taken in the Spring or Summer semester of the Junior year.
2. Students must be accepted into and successfully complete a Child Life clinical experience (internship) which is supervised by a Certified Child Life Specialist. To pass the clinical experience course, students must earn minimal entry-level competence during the internship experience.
3. Students who are unsuccessful in securing placement for an appropriate practicum may not continue on in the Child Life concentration. Students who are unsuccessful in securing an appropriate Child Life Internship prior to graduation, may NOT graduate with a degree in Human Ecology, concentration in Child Life.
4. AGHE 1020 not required for transfer students with more than 12 hours.

Human Ecology, Family and Consumer Sciences Education Concentration, B.S.H.E. (Leading to the Bachelor of Science in Human Ecology Degree)

Family and Consumer Sciences Education prepares students for careers as FACS teachers in middle and high schools, as USDA Cooperative Extension Agents and for other human services professions. Licensure is available and required only for teaching professions.

Curriculum
Freshman Year
See note 1.

First Semester

- AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1. ⁵
- ART 1035 - Introduction to Art Credit: 3.
- CHEM 1010 - Introductory Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- HEC 1010 - Life Span Development Credit: 3.
- HIST 2010 - Early United States History Credit: 3.

Total: 17

Second Semester

- AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.
- CHEM 1020 - Introductory Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- HEC 1005 - Introduction to Human Ecology Credit: 1.
- HEC 2020 - Nutrition for Health Sciences Credit: 3.
- MATH 1010 - Math for General Studies Credit: 3.

Total: 15

Sophomore Year

See note 2.

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- EDPY 2210 - Educational Psychology Credit: 3.
- HEC 2065 - Families in Society Credit: 3.
- HEC 2355 - Clothing Construction Credit: 3.
- HEC 2800 - Introduction to Teaching Family and Consumer Sciences Credit: 3.

- Social/Behavioral Science Elective Credit: 3.

Total: 18

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- HEC 2200 - Development of Young Children: Conception to Age 6 Credit: 3.
- HEC 3290 - Nutrition through the Life Cycle Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.

- Social/Behavioral Science Elective Credit: 3.

Total: 18

Junior Year

See note 3.

First Semester

- AGHE 4500 - Senior Seminar Credit: 1.
- HEC 2240 - Food Preparation and Management Credit: 4.
- HEC 2421 - Architectural Graphics and Presentation Techniques Credit: 3.
- HEC 3011 - Consumer Economics Credit: 3.
- READ 3350 - Teaching Reading in the Content Areas Credit: 3.

Total: 14

Second Semester

- FOED 3010 - Integrating Instructional Technology into the Classroom Credit: 3.
- HEC 3500 - Development: Middle Childhood/Adolescence Credit: 3.
- HEC 3520 - Parent Education and Child Guidance Credit: 2.
- HEC 3805 - Materials and Methods of Teaching Family and Consumer Sciences Education Credit: 3.
- HEC 3812 - Practicum in Family and Consumer Sciences Credit: 2.

Total: 13

Senior Year

See note 4.

First Semester

- SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom Credit: 3.
- HEC 4871 - Residency I Credit: 5.
- HEC 4872 - Professional Seminar I Credit: 5.

Total: 13

Second Semester

- HEC 4881 - Residency II Credit: 10.
- HEC 4882 - Professional Seminar II Credit: 2.

Total: 12

Note:

¹Student working toward teacher certification must take HEC 4871, HEC 4872, HEC 4881, and HEC 4882 and must complete all requirements for admission to Teacher Education Program. Students seeking non-licensure HEED must take 22 credit hours including: AGHE 4500 (1 credit), HEC 4990 (12 hours) and a total of eight credit hours of electives, three hours of which must be upper division credits, to total 22 credits.

²As a sophomore, complete paperwork for admission to Teacher Education Program, and take Praxis I exam or apply for exemption.

³As a junior, complete Benchmarks and paperwork for Residency I requirements; take Praxis II exam and FACS content; and apply for graduation.

⁴Apply for Admission for Residency II.

⁵AGHE 1020 not required for transfer students with more than 12 hours.

Human Ecology, Food Systems Administration Concentration, B.S.H.E.

(Leading to the Bachelor of Science in Human Ecology Degree)

The School of Human Ecology offers two nutrition-related concentrations. Nutrition and Dietetics is the accredited dietetic curriculum which prepares students to be eligible to enter a dietetic internship program: part of the process to becoming a Registered Dietitian/Nutritionist (RDN). Registered Dietitian/Nutritionists work in health care, community health agencies, sports nutrition, research and food management. The Food Systems Administration curriculum prepares students for careers in food service and production, food research, food science, and other management opportunities within the food industry.

Curriculum

Freshman Year

First Semester

- AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1. ⁴
- CHEM 1010 - Introductory Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- HEC 1010 - Life Span Development Credit: 3.
- HIST 2010 - Early United States History Credit: 3.

Total: 14

Second Semester

- CHEM 1020 - Introductory Chemistry II Credit: 4.
- COMM 2025 - Fundamentals of Communication Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- HEC 1005 - Introduction to Human Ecology Credit: 1.
- HEC 2065 - Families in Society Credit: 3.

Total: 14

Sophomore Year

First Semester

- BIOL 1010 - Introduction to Biology Credit: 4.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.
- HEC 2020 - Nutrition for Health Sciences Credit: 3.
- MATH 1530 - Introductory Statistics Credit: 3.

Total: 16

Second Semester

- Humanities/Fine Arts Elective Credit: 3.
- ANTH 1100 - Introduction to Anthropology Credit: 3. or
- SOC 1010 - Introduction to Sociology Credit: 3.
- BIOL 1020 - Diversity of Life Credit: 4. or
- CHEM 3005 - Elementary Organic Chemistry Credit: 4.

- AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.

- HEC 2240 - Food Preparation and Management Credit: 4.

Total: 15

Junior Year

First Semester

- ACCT 2110 - Principles of Accounting I Credit: 3.
- BIOL 2350 - Introductory Anatomy and Physiology Credit: 4.
- HEC 3240 - Quantity Food Production Credit: 4.
- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 14

Second Semester

- BIOL 3230 - Health Science Microbiology Credit: 4.
- ECON 2010 - Principles of Microeconomics Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- HEC 3011 - Consumer Economics Credit: 3.
- HEC 3270 - Nutrition in Disease Credit: 3.

Total: 16

Senior Year

First Semester

- AGHE 3000 - (WSL2) Leadership and Service Credit: 3. or
- AGHE 3200 - Study Abroad Exploration Credit: 1-6. or
- AGHE 3275 - Research in Agriculture and Human Ecology Credit: 3.

- BMGT 3510 - Management and Organization Behavior Credit: 3.

- HEC 4242 - Food Systems Administration Credit: 3.
- HEC 4940 - Nutrition, Fitness and Wellness Credit: 2.

- MKT 3310 - Services Marketing Credit: 3. or
- MKT 3400 - Principles of Marketing Credit: 3.

- Elective Credit: 1.

Total: 15

Second Semester

- AGHE 4500 - Senior Seminar Credit: 1.
- BMGT 3630 - Human Resource Management Credit: 3.
- HEC 3201 - Community Nutrition Credit: 3. or

- HEC 3290 - Nutrition through the Life Cycle Credit: 3.
 - HEC 3390 - Purchasing in Food Service Management Credit: 3.
 - HEC 4254 - Field Experience in School Nutrition Credit: 6. or
 - HEC 4995 - Field Experience—Food Systems Credit: 6.
- Total: 16
Note:

1. To be eligible to complete endorsement to become a School Nutrition Supervisor in Tennessee, the following courses must be taken:
 - a. Take HEC 4252 instead of HEC 4995. Enroll in 18 total credits of Education,
 - b. Psychology or Sociology- See advisor for suggested courses. Successfully complete BGMT 3630, ACCT
 - c. 2110, HEC 4242, HEC 2020 and MATH 1530.
2. To be eligible to apply for an Environmental Health Specialist in Tennessee, twenty-four (24) credits in natural sciences are required. See advisor for suggested courses.
3. NOTE:
This curriculum DOES NOT meet accreditation content requirements to complete the Didactic Program in Dietetics (DPD); therefore, students in the Food Systems Administration curriculum are NOT eligible to complete requirements to become a Registered Dietitian/Nutritionist (RDN).
- 4 AGHE 1020 not required for transfer students with more than 12 hours.

Human Ecology, Housing and Design Concentration, B.S.H.E.

(Leading to the Bachelor of Science in Human Ecology Degree)

Housing and Design focuses on adapting space to meet the psychosocial and physical needs of people in residential and commercial environments. Graduates pursue careers in interior space planning, design of the built environment, historic preservation, real estate, and furnishings and sales.

Curriculum
Freshman Year
First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH 1130 - College Algebra Credit: 3.
- CHEM 1010 - Introductory Chemistry I Credit: 4.
- AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1. ¹

- ANTH 1100 - Introduction to Anthropology Credit: 3. or
 - SOC 1010 - Introduction to Sociology Credit: 3.
- Total: 14
Second Semester
- ART 1035 - Introduction to Art Credit: 3.
 - CHEM 1020 - Introductory Chemistry II Credit: 4.
 - ENGL 1020 - English Composition II Credit: 3.
 - MATH 1010 - Math for General Studies Credit: 3. or
 - MATH 1530 - Introductory Statistics Credit: 3.

- HEC 1005 - Introduction to Human Ecology Credit: 1.
- HEC 2041 - Aspects of Housing and Furnishings Credit: 3.

- Total: 17
Sophomore Year
First Semester
- PSY 1030 - Introduction to Psychology Credit: 3.
 - DS 2810 - Computer Applications in Business Credit: 3.

- HEC 1010 - Life Span Development Credit: 3.
- HEC 2065 - Families in Society Credit: 3.
- HEC 2421 - Architectural Graphics and Presentation Techniques Credit: 3.

- Total: 15
Second Semester
- COMM 2025 - Fundamentals of Communication Credit: 3. or
 - PC 2500 - Communicating in the Professions Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.
- HEC 2411 - Practicum: Housing and Design Credit: 1.
- HEC 2440 - Computer Aided Design of Residences Credit: 3.

- Total: 11
Junior Year
First Semester
- ECON 2010 - Principles of Microeconomics Credit: 3.
 - HIST 2010 - Early United States History Credit: 3.
 - HEC 2431 - Residential Design I Credit: 3.
 - HEC 3310 - Textiles I Credit: 3.
 - HEC 3350 - Merchandising I Credit: 3.

- Total: 15
Second Semester
- ECON 2020 - Principles of Macroeconomics Credit: 3.
 - HIST 2020 - Modern United States History Credit: 3.
 - HEC 2460 - Interior Architecture Codes and Standards Credit: 2.

- HEC 3320 - Textiles II Credit: 3.
 - HEC 3431 - Residential Design II Credit: 3.
- AGHE 3000 - (WSL2) Leadership and Service Credit: 3. or
 - AGHE 3200 - Study Abroad Exploration Credit: 1-6. or
 - AGHE 3275 - Research in Agriculture and Human Ecology Credit: 3.
- Total: 17
Senior Year
First Semester
- Humanities/Fine Arts Elective Credit: 3.
 - HEC 3011 - Consumer Economics Credit: 3.
 - HEC 4450 - Commercial Design Credit: 3.
 - HEC 4460 - Historical and Contemporary Architecture and Furnishings Credit: 3
 - Elective Credit: 3.
- Total: 15
Second Semester
- AGHE 4500 - Senior Seminar Credit: 1.
 - FIN 3410 - Principles of Real Estate Credit: 3.
 - MKT 3400 - Principles of Marketing Credit: 3.
 - Upper-Division Human Ecology Electives Credit: 6.
- Total: 13
Note:

¹ AGHE 1020 not required for transfer students with more than 12 hours.

² Transfer students must take at least CHEM 1010 as a prerequisite for Textiles I.

Human Ecology, Merchandising and Design Concentration, B.S.H.E.
(Leading to the Bachelor of Science in Human Ecology Degree)

Merchandising and Design curriculum focuses on the design, production, distribution and selection of consumer products. Career opportunities include positions in management, merchandise buyer, sales representative, shopper/stylist, fashion coordinator, textile researcher, fashion designer and many others.

Curricula

Freshman Year

First Semester

- AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1. ¹
- CHEM 1010 - Introductory Chemistry I Credit: 4. ²
- ENGL 1010 - English Composition I Credit: 3.
- HEC 1110 - Concepts of Design Credit: 3.
- MATH 1010 - Math for General Studies Credit: 3.

- SOC 1010 - Introduction to Sociology Credit: 3. or
- ANTH 1100 - Introduction to Anthropology Credit: 3.

Total: 17

Second Semester

- ENGL 1020 - English Composition II Credit: 3.

- CHEM 1020 - Introductory Chemistry II Credit: 4. ²
- HEC 1150 - Analysis of Apparel and Findings Credit: 3.

- HEC 1010 - Life Span Development Credit: 3.
 - HEC 1005 - Introduction to Human Ecology Credit: 1.
- Total: 14

Sophomore Year

First Semester

- AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.
- ECON 2010 - Principles of Microeconomics Credit: 3.
- HEC 2065 - Families in Society Credit: 3.
- HIST 2010 - Early United States History Credit: 3.
- MATH 1530 - Introductory Statistics Credit: 3.
- HEC 2355 - Clothing Construction Credit: 3.

Total: 16

Second Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- COMM 2025 - Fundamentals of Communication Credit: 3. or

- PC 2500 - Communicating in the Professions Credit: 3.

- HEC 2311 - Practicum: Merchandising and Design Credit: 1.

- HIST 2020 - Modern United States History Credit: 3.
- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 13

Junior Year

First Semester

- ACCT 3720 - Survey of Accounting Credit: 3.
- HEC 3011 - Consumer Economics Credit: 3.
- HEC 3310 - Textiles I Credit: 3.
- HEC 3350 - Merchandising I Credit: 3.
- MKT 3400 - Principles of Marketing Credit: 3.

Total: 15

Second Semester

- AGHE 3000 - (WSL2) Leadership and Service Credit: 3. or
- AGHE 3200 - Study Abroad Exploration Credit: 1-6. or
- AGHE 3275 - Research in Agriculture and Human Ecology Credit: 3.

- Apparel Course³ Credit: 6.
- Electives Credit: 5.
- HEC 3320 - Textiles II Credit: 3.

Total: 17

Senior Year

First Semester

- HEC 4315 - Global Social Responsibility Credit: 3.

- HEC 4320 - Merchandise Promotion and Advertising Credit: 3.

- Humanities/Fine Arts Electives Credit: 6.

- Upper Division Business Elective Credit: 3.

Total: 15

Second Semester

- AGHE 4500 - Senior Seminar Credit: 1.

- HEC 4340 - History of Furnishings and Dress Credit: 3.

- HEC 4360 - Merchandising II Credit: 3.

- HEC 4990 - Internship Credit: 3, 6, 8, 12. (Six required)

Total: 13

Note:

¹ AGHE 1020 not required for transfer students with more than 12 hours.

² To progress into Textiles I, a minimum grade of "C" is required in CHEM 1010 and CHEM 1020 and these courses must be taken before the junior year.

³ Select two:

HEC 2300 - Tailoring

HEC 3300 - Flat Pattern

HEC 4300 - Draping

HEC 4301 - Computer Aided Apparel Design (offered in Odd Years)

Human Ecology, Nutrition and Dietetics Concentration, B.S.H.E.

NUTRITION AND DIETETICS¹

(Leading to the Bachelor of Science in Human Ecology Degree)

The School of Human Ecology offers two nutrition-related concentrations. Nutrition and Dietetics is the accredited dietetic curriculum which prepares students to be eligible to enter a dietetic internship program: part of the process to becoming a Registered Dietitian/Nutritionist (RDN). Registered Dietitian/Nutritionists work in health care, community health agencies, sports nutrition, research and food management. The Food Systems Administration curriculum prepares students for careers in food service and production, food research, food science, and other management opportunities within the food industry.

Curriculum

Freshman Year

First Semester

- AGHE 1020 - Connections in Agriculture and Human Ecology Credit: 1. ⁴

- CHEM 1010 - Introductory Chemistry I Credit: 4.

- ENGL 1010 - English Composition I Credit: 3.

- HEC 1010 - Life Span Development Credit: 3.

- SOC 1010 - Introduction to Sociology Credit: 3. or

- ANTH 1100 - Introduction to Anthropology Credit: 3.

Total: 14

Second Semester

- CHEM 1020 - Introductory Chemistry II Credit: 4.

- ENGL 1020 - English Composition II Credit: 3.

- HEC 1005 - Introduction to Human Ecology Credit: 1.

- HEC 2065 - Families in Society Credit: 3.

- HIST 2010 - Early United States History Credit: 3.

Total: 14

Sophomore Year

First Semester

- BIOL 2010 - Human Anatomy and Physiology I Credit: 4. and

- BIOL 2020 - Human Anatomy and Physiology II Credit: 4.

or

- BIOL 2350 - Introductory Anatomy and Physiology Credit: 4.

- ENGL 2130 - Topics in American Literature Credit: 3.

or

- ENGL 2235 - Topics in British Literature Credit: 3. or

- ENGL 2330 - Topics in World Literature Credit: 3.

- HEC 2020 - Nutrition for Health Sciences Credit: 3.

- HEC 2240 - Food Preparation and Management Credit: 4.

- MATH 1530 - Introductory Statistics Credit: 3.

Total: 17

Second Semester

- AGHE 2022 - Professionalism in Agriculture and Human Ecology Credit: 1.

- CHEM 3005 - Elementary Organic Chemistry Credit: 4.

- COMM 2025 - Fundamentals of Communication Credit: 3.

- HEC 2220 - Medical Terminology for the Human Sciences Credit: 1.

- Humanities/Fine Arts Elective³ Credit: 3.

Total: 12

Junior Year

First Semester

- BIOL 3230 - Health Science Microbiology Credit: 4.

- HEC 3011 - Consumer Economics Credit: 3.

- HEC 3240 - Quantity Food Production Credit: 4.

- Humanities/Fine Arts Elective³ Credit: 3.

- PSY 1030 - Introduction to Psychology Credit: 3.

Total: 17

Second Semester

- AGHE 3000 - (WSL2) Leadership and Service Credit: 3. or

- AGHE 3200 - Study Abroad Exploration Credit: 1-6. or

- AGHE 3275 - Research in Agriculture and Human Ecology Credit: 3.

- CHEM 4500 - Nutritional Biochemistry Credit: 3.
- HEC 3201 - Community Nutrition Credit: 3.
- HEC 3270 - Nutrition in Disease Credit: 3.
- HEC 3290 - Nutrition through the Life Cycle Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.

Total: 18

Senior Year

First Semester

- AGHE 4500 - Senior Seminar Credit: 1.
- HEC 3565 - Loss and Bereavement for Children and Families Credit: 3.
- HEC 4200 - Advanced Nutrition Credit: 3.
- HEC 4242 - Food Systems Administration Credit: 3.
- HEC 4271 - Medical Nutrition Therapy Credit: 3.

Total: 13

Second Semester

- BMGT 3510 - Management and Organization Behavior Credit: 3.
- Elective Credit: 1.
- HEC 4272 - Clinical Dietetics Credit: 3.
- HEC 4925 - Nutrition Counseling and Education Credit: 3.
- HEC 4940 - Nutrition, Fitness and Wellness Credit: 2.
- HEC 4994 - Field Experience—Health Care Credit: 3. *

Total: 15

Note:

*Requires professional liability insurance (additional fee), background check (additional fee), proof of insurance, and proof of immunizations before entering HEC 4994.

¹ The Nutrition and Dietetics concentration is an accredited Didactic Program in Dietetics (DPD); which requires a mandatory enrollment policy. A total of 20 students will be enrolled each year at the junior level, and a total of **20 students will be enrolled each year at the senior level**. Students should plan to apply for admission into upper division dietetics during the

Department of Manufacturing and Engineering Technology

Engineering Technology, B.S.E.T. (Leading to the Bachelor of Science in Engineering Technology Degree)

Curriculum

Freshman Year

First Semester

- CHEM 1010 - Introductory Chemistry I Credit: 4. or
- CHEM 1110 - General Chemistry I Credit: 4.

- ENGL 1010 - English Composition I Credit: 3.

sophomore year. See www.tntech.edu/hec for application details.

² The Nutrition and Dietetics concentration is an accredited Didactic Program in Dietetics (DPD) by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics. Contact:
1-800-877-1600 Ext. 5400
Fax: 312-899-4817
acend@eatright.org
<http://www.eatright.org/ACEND/>

³ Select a Humanities/Fine Arts course from the general education list.

⁴ AGHE 1020 not required for transfer students with more than 12 hours. In order to become a Registered Dietitian/Nutritionist (RDN) and to practice as an RDN, the following steps must be completed:

- After successful graduation from TTU's DPD program, gain acceptance and complete an accredited supervised practice program (Dietetic Internship).
- Pass the Academy of Nutrition and Dietetics Registration Exam.
- Obtain appropriate licensure in the state in which you will practice.

- MATH 1730 - Pre-calculus Mathematics Credit: 5.
- ENGR 1110 - Engineering Graphics Credit: 2.
- ENGR 1020 - Connections to Engineering and Technology Credit: 1. ¹

Total: 15

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- Humanities/Fine Arts Electives Credit: 6.
- MATH 1845 - Technical Calculus Credit: 3. ²
- MET 1100 - Introduction to Manufacturing Engineering Technology Credit: 2.

Total: 14

Sophomore Year

First Semester

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
- ECON 2010 - Principles of Microeconomics Credit: 3.
or
- ECON 2020 - Principles of Macroeconomics Credit: 3.
- HIST 2010 - Early United States History Credit: 3.
- MET 2065 - Metal Manufacturing Technology Credit: 2.
- MET 2310 - Applied Fluid Power Credit: 2.
- PHYS 2010 - Algebra-based Physics I Credit: 4. or
- PHYS 2110 - Calculus-based Physics I Credit: 4.
Total: 18
Second Semester
- ENGL 2130 - Topics in American Literature Credit: 3.
or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.
- PHYS 2020 - Algebra-based Physics II Credit: 4. or
- PHYS 2120 - Calculus-based Physics II Credit: 4.
- HIST 2020 - Modern United States History Credit: 3.
- MET 2000 - Occupational Safety Credit: 2.
- MET 2400 - Statics and Strength of Materials Credit: 3.
- MET 2615 - Engineering Technology Ethics and Professionalism Credit: 1.
Total: 16
Junior Year
First Semester
- ACCT 3720 - Survey of Accounting Credit: 3.
- BMGT 3510 - Management and Organization Behavior Credit: 3.
- MET 3301 - CAD for Technology Credit: 2.
- MET 3700 - Manufacturing Cost Estimating Credit: 2.
- MET 3710 - Methods Design and Work Measurement Credit: 2.
- ME 3010 - Materials and Processes in Manufacturing Credit: 3. or
- ME 3110 - Physical Metallurgy and Heat Treatment Credit: 3. or
- MET 3100 - Applied Physical Metallurgy Credit: 3.
Total: 15
Second Semester
- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.
- ECON 3610 - Business Statistics I Credit: 3.
- MET 3000 - Principles of Metal Casting Credit: 2.

- MET 3200 - Applied Electricity and Electronics Credit: 3.
- MET 3403 - Applied Machine Elements Credit: 3.
Total: 14
Senior Year
First Semester
- Business Elective Credit: 3.²
- Area of Concentration Credit: 6.³
- DS 3520 - Operations Management Credit: 3.
- MET 3150 - Maintenance Technology I Credit: 2.
- PSY 1030 - Introduction to Psychology Credit: 3.
Total: 17
Second Semester
- Area of Concentration Credit: 9.³
- MET 4310 (5310) - Plant Layout and Materials Handling Credit: 3.
- MET 4620 - Senior Projects Credit: 3.
Total: 15
Note:
¹ This course not included in 124-hour curriculum.

² Business Electives: BMGT 3630, BMGT 4520 (5520), DS 3620, DS 3540, FIN 3210, LAW 2810 or MKT 3400.

³ Select one of the following concentrations (15 credits):
Concentration I - Mechatronics Engineering Technology
MET 3060, MET 3260, ECE 3270, MET 4250 (5250) and select two courses from: MET 3460, MET 4000, MET 4060 (5060), MET 4210 (5210), MET 4220 (5220), MET 4300 (5300), MET 4400 (5400), MET 4450 (5450), MET 4500 (5500), MET 4550 (5550), MET 4600 (5600), MET 4650 (5650), MET 4700, MET 4750 (5750), MET 4990 (5990).
Concentration II - Engineering Technology Management
MET 4550 (5550), MET 4650 (5650) and select three courses from: BMGT 3600, BMGT 3630, BMGT 4520 (5520), DS 3620, DS 3540, FIN 3210, LAW 2810, BMGT 4930 (5930), MET 4430 (5430), MET 4600 (5600), MKT 3400, PSY 3400.

Department of Mathematics

Mathematics, B.S.

(Leading to the Bachelor of Science Degree)

Curriculum

Freshman Year

First Semester

- Elective Credit: 3.
- ENGL 1010 - English Composition I Credit: 3.
- MATH 1020 - First-Year Connections Credit: 1. ¹
- MATH 1910 - Calculus I Credit: 4.
- Approved Natural Science Sequence Credit: 4.²

Total: 14

Second Semester

- Elective Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- MATH 1920 - Calculus II Credit: 4.
- Approved Natural Science Sequence Credit: 4.²

Total: 17

Sophomore Year

First Semester

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4. or
- ENGR 1120 - Programming for Engineers Credit: 2.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- MATH 2010 - Introduction to Linear Algebra Credit: 3.
- MATH 2110 - Calculus III Credit: 4.
- Social/Behavioral Science Elective Credit: 3.

Total: 15-17

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- Humanities/Fine Arts Elective Credit: 3.
- MATH 2120 - Differential Equations Credit: 3.
- MATH 3400 - Introduction to Concepts of Mathematics Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

Total: 15

Junior Year

First Semester

- Elective Credit: 3.
- HIST 2010 - Early United States History Credit: 3.
- MATH 3810 - Complex Variables Credit: 3.
- MATH 4470 (5470) - Probability and Statistics I Credit: 3.
- MATH 4530 (5530) - Linear Algebra I Credit: 3.

Total: 15

Second Semester

- Elective Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- MATH 4010 (5010) - Modern Algebra I Credit: 3.
- Mathematics Credit: 3.³

- MATH 3430 - College Geometry Credit: 3. or
- MATH 4410 (5410) - Differential Geometry Credit: 3. or
- MATH 4310 (5310) - Introduction to Topology I Credit: 3.

Total: 15

Senior Year

First Semester

- Elective Credit: 9.
- MATH 4110 (5110) - Advanced Calculus I Credit: 3.
- Mathematics Credit: 3.³

Total: 15

Second Semester

- Electives Credit: 6-8.
- Mathematics Credit: 6.³

Total: 12-14

Note:

¹ This course not included in 120-hour curriculum.

² ASTR 1010-ASTR 1020; or BIOL 1010-BIOL 1020; or BIOL 1113 -BIOL 1123; or BIOL 1113 -BIOL 2310; or CHEM 1010-CHEM 1020; or CHEM 1110-CHEM 1120; or GEOL 1040-GEOL 1045; or PHYS 2110-PHYS 2120.

³ Upper Division Mathematics courses (3000 or higher). The student must complete three Upper-Division sequences. The approved sequences are organized into Pure Mathematics and Applied Mathematics categories as shown below. The student must complete at least one sequence from each category. Depending upon which Upper-Division sequences are chosen, a student will need to take between 9 and 18 credit hours of Upper-Division Mathematics classes in addition to the Mathematics courses specifically listed as required in the curriculum.

Applied Mathematics Sequence List: MATH 3070-MATH 3080; MATH 4210 (5210)-MATH 4220 (5220); MATH 4250 (5250)-MATH 4260 (5260); two of the three: MATH 4350 (5350), MATH 4360 (5360) or MATH 4050 (5050); and MATH 4470 (5470)-MATH 4480 (5480).

Pure Mathematics Sequence List: MATH 4010 (5010)-MATH 4020 (5020); MATH 4110 (5110)-MATH 4120 (5120); MATH 4310 (5310)-MATH 4320 (5320); MATH 4530 (5530)-MATH 4540 (5540); and MATH 4850 (5850)-MATH 4860 (5860).

Optional Tracks

To allow students to prepare for different career paths, four optional tracks are available: Actuarial, Applied Mathematics, Pure Mathematics, and Statistics. The following are courses recommended (but not required) for students in each track.

Actuarial Track:

The Actuarial Track is designed for students who want to pursue a career in the technical branches of Finance or insurance.

MATH 3070-
3080 Statistical Methods I and II

- MATH 4210-4220 Numerical Analysis I and II
 MATH 4470-4480 Probability and Statistics I and II
 MATH 4540 Linear Algebra II
 MATH 6270 Mathematical Statistics (with permission from the Graduate School)

The following courses from the College of Business (the courses marked with an asterisk comprise a Business Minor):

- *ECON 2010-2020
- *ACCT 3720
- *BMGT 3510
- *MKT 3400
- *FIN 3210
- *LAW 2810
- FIN 3610
- DS 2810
- DS 3620

Applied Mathematics Track:

The Applied Mathematics Track emphasizes courses needed by students who plan to work alongside scientists and engineers in industry. It is recommended that the student minor in Computer Science as a complement to this track.

- MATH 3810 Complex Variables
- MATH 4510 Advanced Math for Engineers
- MATH 4540 Linear Algebra II
- Two sequences chosen from:
 - MATH 3070-3080 Statistical Methods I and II
 - MATH 4210-4220 Numerical Analysis I and II
 - MATH 4250-4260 Advanced Ordinary Differential Equations I and II
 - MATH 4350 Introductory Combinatorics and MATH 4360 Graph Theory
 - MATH 4470-4480 Probability and Statistics I and II

Pure Mathematics Track:

The Pure Mathematics Track provides a good foundation for graduate study in a variety of subjects such as Economics, Finance, Business, Computer Science, Mathematics, and Physics.

- MATH 4020 Modern Algebra II
- MATH 4120 Advanced Calculus II
- MATH 4310 Introduction to Topology I
- MATH 4350 Introductory Combinatorics
- MATH 4360 Graph Theory
- MATH 4540 Linear Algebra II

Statistics Track:

The Statistics Track prepares students for immediate entry into the workforce or for graduate study. Statistical knowledge is a powerful tool that is used in many fields such as Political Science, Business, Biology, and Medicine.

- MATH 3070-3080 Statistical Methods I and II
- MATH 4210-4220 Numerical Analysis I and II
- MATH 4470-4480 Probability and Statistics I and II
- MATH 4540 Linear Algebra II

Department of Mechanical Engineering

**Mechanical Engineering, B.S.M.E.
(Leading to the Bachelor of Science in Mechanical Engineering Degree)**

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- ENGR 1020 - Connections to Engineering and Technology Credit: 1. ¹
- ENGR 1110 - Engineering Graphics Credit: 2.
- Humanities/Fine Arts Elective Credit: 3.
- MATH 1910 - Calculus I Credit: 4.

Core: 17

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- ENGR 1120 - Programming for Engineers Credit: 2.
- Humanities/Fine Arts Elective Credit: 3.
- MATH 1920 - Calculus II Credit: 4.
- PHYS 2110 - Calculus-based Physics I Credit: 4.

Core: 16

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- CEE 2110 - Statics Credit: 3.
- MATH 2010 - Introduction to Linear Algebra Credit: 3.
- MATH 2120 - Differential Equations Credit: 3.
- ME 2910 - Professionalism and Ethics Credit: 1.
- PHYS 2120 - Calculus-based Physics II Credit: 4.

Total: 17

Second Semester

- PC 2500 - Communicating in the Professions Credit: 3. or

- COMM 2025 - Fundamentals of Communication Credit: 3.

- ECE 2010 - Electric Circuits I Credit: 3.
- MATH 2110 - Calculus III Credit: 4.
- ME 2330 - Dynamics Credit: 3.
- ME 3010 - Materials and Processes in Manufacturing Credit: 3.

Total: 16

Junior Year

First Semester

- CEE 3110 - Mechanics of Materials Credit: 3.
- ME 3001 - Mechanical Engineering Analysis Credit: 3.
- ME 3023 - Measurements in Mechanical Systems Credit: 3.
- ME 3210 - Thermodynamics I Credit: 3.
- ME 3720 - Fluid Mechanics Credit: 3.

Total: 15

Second Semester

- ME 3050 - Dynamic Modeling and Controls Credit: 3.
- ME 3060 - Dynamic Modeling and Controls Lab Credit: 1.
- ME 3220 - Thermodynamics II Credit: 3.
- ME 3610 - Dynamics of Machinery Credit: 3.
- ME 3710 - Heat Transfer Credit: 3.
- ME 4010 - Machine Design Credit: 3.

Total: 16

Senior Year

First Semester

- Social/Behavioral Science Elective Credit: 3.

- ME 4020 (5020) - Applied Machine Design Credit: 3.

or

- ME 4720 (5720) - Thermal Design Credit: 3.

- ME 4410 - Senior Design Project I Credit: 3.
- Area of Emphasis Credit: 6.

Total: 15

Second Semester

- Social/Behavioral Science Elective Credit: 3.
- ME 4420 - Senior Design Project II Credit: 3.
- ME 4751 - Energy Systems Lab Credit: 2.
- Area of Emphasis Credit: 9.

Total: 17

Note:

¹ENGR 1020 Connections to Engineering and Technology required in the first semester Freshman year to fulfill TTU's UNIV 1020 requirement. Does not count toward the 128-credit hour BSME degree.

Area of Emphasis (AOE) Courses

Category 1: Mechanical engineering elective courses (a minimum of 9 credit hours must be taken from this category for AOE)

- ME 4020 (5020) - Applied Machine Design Credit: 3.
- ME 4060 (5060) - Machine Vibrations Credit: 3.
- ME 4120 (5120) - Intermediate Dynamics Credit: 3.
- ME 4140 (5140) - Introduction to Robotics and Intelligent Machines Engineering Credit: 3.
- ME 4160 (5160) - Experimental Stress Analysis Credit: 3.
- ME 4180 (5180) - Finite Element Methods in Mechanical Design Credit: 3.
- ME 4190 (5190) - Advanced Mechanics of Materials Credit: 3.
- ME 4210 - Refrigeration and Air Conditioning Credit: 3.
- ME 4220 - Air Conditioning Design Credit: 3.
- ME 4260 (5260) - Energy Conversion and Conservation Credit: 3.
- ME 4310 (5310) - Gas Dynamics Credit: 3.
- ME 4370 (5370) - Mechatronics and Intelligent Machines Engineering Credit: 3.
- ME 4460 (5460) - Mechanical Properties of Materials Credit: 3.
- ME 4470 (5470) - Interdisciplinary Studies in Ceramic Materials Processing Credit: 3.
- ME 4480 (5480) - Microstructural Analysis Credit: 3.
- ME 4490 (5490) - Properties and Selection of Engineering Materials Credit: 3.
- ME 4510 (5510) - Aerodynamics Credit: 3.
- ME 4610 - Steam Power Plants Credit: 3.
- ME 4620 (5620) - Turbomachinery Credit: 3.
- ME 4630 - Internal Combustion Engines Credit: 3.
- ME 4640 (5640) - Dynamics of Machinery II Credit: 3.
- ME 4720 (5720) - Thermal Design Credit: 3.
- ME 4730 (5730) - Numerical Heat Transfer Credit: 3.
- ME 4810 (5810) - Automatic Controls Credit: 3.
- ME 4900 - Special Topics Credit: 3. (maximum of 3 credit hours shall be counted as AOE)
- ME 4930 (5930) - Noise Control Credit: 3.
- ME 4990 - Undergraduate Research Credit: 3. (maximum of 3 credit hours shall be counted as AOE)

Any ME 6000-level courses may be used with prior approval of both the course instructor and the ME department chair/associate chair. The student must be within 18 credit hours of graduation.

Category 2: Mathematics directly applicable to mechanical engineering

- MATH 3470 - Introductory Probability and Statistics Credit: 3.
- MATH 3810 - Complex Variables Credit: 3.
- MATH 4210 (5210) - Numerical Analysis I Credit: 3.
- MATH 4220 (5220) - Numerical Analysis II Credit: 3.
- MATH 4250 (5250) - Advanced Ordinary Differential Equations I Credit: 3.

- MATH 4510 (5510) - Advanced Mathematics for Engineers Credit: 3.
 - MATH 4530 (5530) - Linear Algebra I Credit: 3.
 - MATH 4710 (5710) - Vector Analysis Credit: 3.
- Category 3: General Engineering, Business, Writing and Technology Courses
(maximum of 3 credit hours shall be counted as AOE)

- BMGT 3510 - Management and Organization Behavior Credit: 3.
 - ENGL 3520 Professional Communication I Credit: 3.
 - ENGR 4510 - Engineering Management Credit: 3.
 - ENTR 4500 - Innovation and Entrepreneurship: Lean Launchpad Credit: 3.
 - MET 4400 (5400) - Geometric Dimensioning and Tolerancing Credit: 3.
 - MET 4450 (5450) - Additive Manufacturing Credit: 3.
 - MET 4650 (5650) - Lean Six Sigma Manufacturing Credit: 3.
- Category 4: Miscellaneous Engineering and Science Courses
Other upper division (3000 and 4000-level) engineering and science courses may be used with prior approval of both the course instructor and the ME department.

Mechanical Engineering, Mechatronics Concentration, B.S.M.E.

(Leading to the Bachelor of Science in Mechanical Engineering Degree)

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- ENGR 1020 - Connections to Engineering and Technology Credit: 1.
- ENGR 1110 - Engineering Graphics Credit: 2.
- Humanities/Fine Arts Elective Credit: 3.
- MATH 1910 - Calculus I Credit: 4.

Total: 17

Second Semester

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- MATH 1920 - Calculus II Credit: 4.
- PHYS 2110 - Calculus-based Physics I Credit: 4.

Total: 15

Sophomore Year

First Semester

- CEE 2110 - Statics Credit: 3.
- ECE 2110 - Introduction to Digital Systems Credit: 3.

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- MATH 2010 - Introduction to Linear Algebra Credit: 3.
 - MATH 2120 - Differential Equations Credit: 3.
 - PHYS 2119 - Calculus-based Physics II Credit: 3.
- Total: 18

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- ECE 2010 - Electric Circuits I Credit: 3.
- ECE 2011 - Electrical Engineering Lab I Credit: 1.
- MATH 2110 - Calculus III Credit: 4.
- ME 2330 - Dynamics Credit: 3.
- ME 2910 - Professionalism and Ethics Credit: 1.
- ME 3001 - Mechanical Engineering Analysis Credit: 3.

Total: 18

Junior Year

First Semester

- CEE 3110 - Mechanics of Materials Credit: 3.
- ME 3010 - Materials and Processes in Manufacturing Credit: 3.
- ME 3023 - Measurements in Mechanical Systems Credit: 3.
- ME 3210 - Thermodynamics I Credit: 3.
- ME 3610 - Dynamics of Machinery Credit: 3.

Total: 15

Second Semester

- ME 3050 - Dynamic Modeling and Controls Credit: 3.
- ME 3060 - Dynamic Modeling and Controls Lab Credit: 1.
- ME 3220 - Thermodynamics II Credit: 3.
- ME 3710 - Heat Transfer Credit: 3.
- ME 3720 - Fluid Mechanics Credit: 3.
- ME 4010 - Machine Design Credit: 3.

Total: 16

Senior Year

First Semester

- Social/Behavioral Science Elective Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- ECE 3130 - Microcomputer Systems Credit: 4.

- ME 4020 (5020) - Applied Machine Design Credit: 3. or
- ME 4720 (5720) - Thermal Design Credit: 3.

- ME 4410 - Senior Design Project I Credit: 3.
- ME 4751 - Energy Systems Lab Credit: 2.

Total: 18

Second Semester

- Social/Behavioral Science Elective Credit: 3.
- ME 4370 (5370) - Mechatronics and Intelligent Machines Engineering Credit: 3.
- ME 4420 - Senior Design Project II Credit: 3.
- ECE 3210 - Control System Analysis Credit: 3. or 2
- ME 4810 (5810) - Automatic Controls Credit: 3.

Total: 12

Note:

Mechanical Engineering, Vehicle Engineering Concentration, B.S.M.E. (Leading to the Bachelor of Science in Mechanical Engineering Degree)

Curriculum

Freshman Year

- ENGL 1010 - English Composition I Credit: 3.
- ENGL 1020 - English Composition II Credit: 3.
- Humanities/Fine Arts Electives Credit: 6.
- MATH 1910 - Calculus I Credit: 4.
- MATH 1920 - Calculus II Credit: 4.
- CHEM 1110 - General Chemistry I Credit: 4.
- ENGR 1110 - Engineering Graphics Credit: 2.
- ENGR 1120 - Programming for Engineers Credit: 2.
- PHYS 2110 - Calculus-based Physics I Credit: 4.
- ENGR 1020 - Connections to Engineering and Technology Credit: 1. ¹

Total: 32

Sophomore Year

- ENGL 2130 - Topics in American Literature Credit: 3.
- or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- MATH 2010 - Introduction to Linear Algebra Credit: 3.
- MATH 2110 - Calculus III Credit: 4.
- MATH 2120 - Differential Equations Credit: 3.
- PHYS 2120 - Calculus-based Physics II Credit: 4.
- CEE 2110 - Statics Credit: 3.
- ECE 2010 - Electric Circuits I Credit: 3.
- ME 3010 - Materials and Processes in Manufacturing Credit: 3.
- ME 2330 - Dynamics Credit: 3.

Total: 32

Junior Year

- ME 3001 - Mechanical Engineering Analysis Credit: 3.

- ME 3210 - Thermodynamics I Credit: 3.
- ME 3720 - Fluid Mechanics Credit: 3.
- ME 2910 - Professionalism and Ethics Credit: 1.
- CEE 3110 - Mechanics of Materials Credit: 3.
- ME 3610 - Dynamics of Machinery Credit: 3.
- ME 3220 - Thermodynamics II Credit: 3.
- ME 3710 - Heat Transfer Credit: 3.
- ME 4010 - Machine Design Credit: 3.
- VE 3400 - Introduction to Automotive Systems Credit:

¹ ENGR 1020 is not part of the 128-hour curriculum.

² ECE 3260 (1) recommended if taking ECE 3210.

3.

- VE 3500 - Sensors, Transducers and Instrumentation Credit: 3.
- MATH 3470 - Introductory Probability and Statistics Credit: 3.

Total: 34

Senior Year

- Social/Behavioral Science Electives Credit: 6.
- ME 3050 - Dynamic Modeling and Controls Credit: 3.
- ME 3060 - Dynamic Modeling and Controls Lab Credit: 1.

- ME 4020 (5020) - Applied Machine Design Credit: 3. or
- ME 4720 (5720) - Thermal Design Credit: 3.

- ME 4751 - Energy Systems Lab Credit: 2.
- VE 4100 - Senior Design Project I Credit: 3.
- VE 4200 - Senior Design Project II Credit: 3.
- VE 4500 - Reliability and Quality Engineering Credit: 3.

- Area of Emphasis Credit: 6.

Total: 30

Area of Emphasis (AOE) Courses

Category 1: Mechanical engineering elective courses (a minimum of 9 credit hours must be taken from this category for AOE)

- ME 4020 (5020) - Applied Machine Design Credit: 3.
- ME 4060 (5060) - Machine Vibrations Credit: 3.
- ME 4120 (5120) - Intermediate Dynamics Credit: 3.
- ME 4140 (5140) - Introduction to Robotics and Intelligent Machines Engineering Credit: 3.
- ME 4160 (5160) - Experimental Stress Analysis Credit: 3.
- ME 4180 (5180) - Finite Element Methods in Mechanical Design Credit: 3.
- ME 4190 (5190) - Advanced Mechanics of Materials Credit: 3.

- ME 4210 - Refrigeration and Air Conditioning Credit: 3.
- ME 4220 - Air Conditioning Design Credit: 3.
- ME 4260 (5260) - Energy Conversion and Conservation Credit: 3.
- ME 4310 (5310) - Gas Dynamics Credit: 3.
- ME 4370 (5370) - Mechatronics and Intelligent Machines Engineering Credit: 3.
- ME 4460 (5460) - Mechanical Properties of Materials Credit: 3.
- ME 4470 (5470) - Interdisciplinary Studies in Ceramic Materials Processing Credit: 3.
- ME 4480 (5480) - Microstructural Analysis Credit: 3.
- ME 4490 (5490) - Properties and Selection of Engineering Materials Credit: 3.
- ME 4510 (5510) - Aerodynamics Credit: 3.
- ME 4610 - Steam Power Plants Credit: 3.
- ME 4620 (5620) - Turbomachinery Credit: 3.
- ME 4630 - Internal Combustion Engines Credit: 3.
- ME 4640 (5640) - Dynamics of Machinery II Credit: 3.
- ME 4720 (5720) - Thermal Design Credit: 3.
- ME 4730 (5730) - Numerical Heat Transfer Credit: 3.
- ME 4810 (5810) - Automatic Controls Credit: 3.
- ME 4900 - Special Topics Credit: 3.
- ME 4930 (5930) - Noise Control Credit: 3.
- ME 4990 - Undergraduate Research Credit: 3.
Any ME 6000-level courses may be used with prior approval of both the course instructor and the ME department chair/associate chair. The student must be within 18 credit hours of graduation.

Category 2: Mathematics directly applicable to mechanical engineering

- MATH 3470 - Introductory Probability and Statistics Credit: 3.
- MATH 3810 - Complex Variables Credit: 3.
- MATH 4210 (5210) - Numerical Analysis I Credit: 3.
- MATH 4220 (5220) - Numerical Analysis II Credit: 3.
- MATH 4250 (5250) - Advanced Ordinary Differential Equations I Credit: 3.
- MATH 4510 (5510) - Advanced Mathematics for Engineers Credit: 3.
- MATH 4530 (5530) - Linear Algebra I Credit: 3.
- MATH 4710 (5710) - Vector Analysis Credit: 3.

Category 3: General Engineering, Business Writing and Technology Courses
(maximum of 3 credit hours shall be counted as AOE)

- BMGT 3510 - Management and Organization Behavior Credit: 3.
- ENGL 3520 Professional Communication I Credit: 3.
- ENGR 4510 - Engineering Management Credit: 3.
- ENTR 4500 - Innovation and Entrepreneurship: Lean Launchpad Credit: 3.
- MET 4400 (5400) - Geometric Dimensioning and Tolerancing Credit: 3.
- MET 4450 (5450) - Additive Manufacturing Credit: 3.
- MET 4650 (5650) - Lean Six Sigma Manufacturing Credit: 3.

Category 4: Miscellaneous Engineering and Science Courses

Other upper division (3000 and 4000-level) engineering and science courses may be used with prior approval of both the course instructor and the ME department.

Note:

¹ ENGR 1020 is not part of the 128-hour curriculum.

School of Music

Music, Instrumental/General Music, K-12 Licensure Concentration, B.M.

(Leading to the Bachelor of Music Degree and the Apprentice License, with endorsement, Grades K-12)

Music Education

Students majoring in music education will follow either the Instrumental or Vocal/General curriculum. Students must select a major performing medium for private study; Instrumental Majors select a band or orchestral concentration, and Vocal/General majors select voice, piano, or organ.

Moreover, music education students must:

- Enroll for private study in the major performing medium each semester of full-time residency.
- Participate each semester in the Ensemble of Record specific to the student's instrument:
 - Piano: Vocal Track: University Choirs; Instrumental Track: University Bands, University Orchestra, or University Jazz Bands
 - Guitar: University Choirs or University Jazz Bands
 - Strings: University Orchestra
- Voice: Concert Choir or Chorale
- Wind/Percussion:
 - Fall Semester – Marching Band
 - Spring Semester – Symphony Band or Concert Band as assigned by audition
- Participate each semester in either studio or departmental recital and, at the discretion of the studio instructor, perform as a soloist in public recital.

- Attend seven (7) recitals or concerts during each semester of full-time residency.
- Satisfy the proficiency examination in piano.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1021 - Class Voice Techniques I Credit: 1.
- MUS 1120 - Harmony I Credit: 3.
- MUS 1130 - Aural Techniques I Credit: 1.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.
- UNMU 1020 - First-Year Music Connection (For Music Majors Only) Credit: 1.¹

Credit: 14

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1030 - Music Appreciation Credit: 3.
- MUS 1070 - Concert Choir Credit: 0-1. (One credit hour required)
- MUS 1140 - Harmony II Credit: 3.
- MUS 1150 - Aural Techniques II Credit: 1.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.
- Social/Behavioral Science Elective Credit: 3.
- Instrument Techniques Class Credit: 1.²

Credit: 17

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3.
- or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- Natural Science Credit: 4.
- MUED 1820 - Introduction to Music Education Credit: 1.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1023 - Intermediate Class Piano for Music Majors III Credit: 1.
- MUS 2110 - Harmony III Credit: 2.
- MUS 2120 - Aural Techniques III Credit: 1.
- MUS 3010 - Music History and Literature I Credit: 3.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.
- Instrument Techniques Class Credit: 1.²

Total: 18

Second Semester

- Natural Science Credit: 4.

- EDPY 2210 - Educational Psychology Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1024 - Intermediate Class Piano for Music Majors IV Credit: 1.
- MUS 2130 - Harmony IV Credit: 2.
- MUS 2140 - Aural Techniques IV Credit: 1.
- MUS 3020 - Music History and Literature II Credit: 3.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.
- Instrument Techniques Class Credit: 1.²

Total: 17

Junior Year

First Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- HIST 2010 - Early United States History Credit: 3.

- MUED 3110 - Materials and Methods in Music, Grades K-5 Credit: 3.

- MUED 3620 - Fundamentals of Conducting Credit: 1.

- MUED 3230 - Marching Band Techniques Credit: 2. or

- MUED 3735 - String Pedagogy and Literature I Credit: 2.

- MUS 1013 - Recital Class Credit: 0.
- MUS 4510 - Computer Applications in Music Credit: 2.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.
- Instrument Techniques Class Credit: 1.²

Total: 17

Second Semester

- HIST 2020 - Modern United States History Credit: 3.
- Social/Behavioral Science Elective Credit: 3.
- MUED 3130 - Materials and Methods in Instrumental Music, Grades 6-12 Credit: 3.
- MUED 3630 - Instrumental Conducting and Literature Credit: 2.
- MUS 1013 - Recital Class Credit: 0.
- MUS 3130 - Form and Analysis Credit: 2.
- MUS 3210 - Instrumentation Credit: 2.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.
- Instrument Techniques Class Credit: 1.²

Total: 18

Senior Year

First Semester

- MUED 4871 - Residency I Credit: 5.
- MUED 4872 - Professional Seminar I Credit: 5.
- MUS 4000 - Senior Recital Credit: 1.
- Applied Music Credit: 1.

- Major Ensemble Credit: 1.

Total: 13

Second Semester

- MUED 4881 - Residency II Credit: 10.
- MUED 4882 - Professional Seminar II Credit: 2.

Total: 12

Note:

¹ This course not included in 125-hour curriculum.

² Instrument Techniques classes, 5 hours. Take MUS 1031, MUS 1041, and MUS 1051, plus two from: MUS 1032 (string students), MUS 1042 (brass and percussion students), MUS 1052 (woodwind and percussion students), MUS 1071 (woodwind, brass, strings, piano and guitar students) or MUS 1081 (piano and guitar students).

³ Must submit evidence of current First Aid/CPR training.

Additional Licensure: Vocal/General Music Education

The student must satisfy current TTU requirements for the B.M. in Music Education, MUIN.

- MUED 3140 - Materials and Methods in Vocal Music, Grades 6-12 Credit: 3.
- MUS 1200 - Private Voice Credit: 1-2.
- MUS 1210 - Diction for Singers I Credit: 1.
- MUS 1220 - Diction for Singers II Credit: 1.

- MUS 1060 - Chorale Credit: 0-1. or
- MUS 1070 - Concert Choir Credit: 0-1.

- MUS 3800 - Vocal Pedagogy and Literature I Credit: 2.

**Music, Music Performance Concentration,
Composition Emphasis, B.M.
(Leading to the Bachelor of Music Degree)**

Music Performance

Admission to the Performance option is by recommendation of the studio instructor. Students in this option select an emphasis in Composition, Instrumental, Jazz, Piano or Vocal Performance.

Students majoring in any Performance option must:

- Enroll for private study in the major performing medium each semester of full-time residency. Four semesters of private study must be at the 3000 level.
- Participate each semester in the Ensemble of Record specific to the student's instrument:

Lower Division (Freshman and Sophomore)

- Piano: University Choirs, University Bands or University Orchestra or University Jazz Bands
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra
- Voice: Concert Choir or Chorale
- Wind/Percussion:
Fall Semester – Marching Band
Spring Semester – Symphony Band or Concert Band as assigned by audition

Upper Division (Junior and Senior)

NOTE: Composition option students follow the Lower Division Ensemble of Record requirement throughout their curriculum. Vocal option students in the Upper Division will enroll in at least one ensemble per semester from the table below as assigned by their advisors. Enrollment in a minimum of two (2) ensembles per semester is required of Upper Division Performance majors in the Instrumental, Jazz and Piano options as follows:

- Piano: The appropriate major ensemble (instrumental or vocal) plus Chamber Music as assigned by the piano coordinator.
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra plus Chamber Music or Bryan Symphony
- Voice: Chorale or Concert Choir
- Wind/Percussion:
 - Jazz: Jazz Ensemble plus Symphony Band or Wind Ensemble
 - All other non-Jazz: Wind Ensemble (Fall) and Symphony Band (Spring) plus University Orchestra or Bryan Symphony Orchestra, or Jazz Ensemble as assigned by the advisor
- Perform as a soloist in public recital during both the Junior and Senior years and, at the discretion of the studio instructor, participate each semester in either studio or departmental recital.
- Attend seven (7) recitals or concerts during each semester of full-time residency.
- Satisfy the proficiency examination in piano.

Curriculum
Freshman Year
First Semester

- ENGL 1010 - English Composition I Credit: 3.
 - MATH Credit: 3.
 - MUS 1000 - Private Composition Credit: 1-2. (One credit required)
 - MUS 1013 - Recital Class Credit: 0.
 - MUS 1021 - Class Voice Techniques I Credit: 1.
 - MUS 1120 - Harmony I Credit: 3.
 - MUS 1130 - Aural Techniques I Credit: 1.
 - UNMU 1020 - First-Year Music Connection (For Music Majors Only) Credit: 1. ¹
 - Applied Music Credit: 1.
 - Major Ensemble Credit: 1.
- Total: 14
- Second Semester
- ENGL 1020 - English Composition II Credit: 3.
 - MUS 1000 - Private Composition Credit: 1-2. (Two credit hours required)
 - MUS 1013 - Recital Class Credit: 0.
 - MUS 1021 - Class Voice Techniques I Credit: 1.
 - MUS 1030 - Music Appreciation Credit: 3.
 - MUS 1140 - Harmony II Credit: 3.
 - MUS 1150 - Aural Techniques II Credit: 1.
 - Applied Music Credit: 1.
 - Major Ensemble Credit: 1.
- Total: 15
- Sophomore Year
- First Semester
- ENGL 2130 - Topics in American Literature Credit: 3. or
 - ENGL 2235 - Topics in British Literature Credit: 3. or
 - ENGL 2330 - Topics in World Literature Credit: 3.
- Social/Behavioral Science Elective Credit: 3.
 - MUS 1000 - Private Composition Credit: 1-2. (Two credit hours required)
 - MUS 1013 - Recital Class Credit: 0.
 - MUS 1023 - Intermediate Class Piano for Music Majors III Credit: 1.
 - MUS 2110 - Harmony III Credit: 2.
 - MUS 2120 - Aural Techniques III Credit: 1.
 - MUS 3010 - Music History and Literature I Credit: 3.
 - Applied Music Credit: 1.
 - Major Ensemble Credit: 1.
- Total: 17
- Second Semester
- COMM 2025 - Fundamentals of Communication Credit: 3. or
 - PC 2500 - Communicating in the Professions Credit: 3.
- MUS 1000 - Private Composition Credit: 1-2. (Two credit hours required)
 - MUS 1013 - Recital Class Credit: 0.

- MUS 1024 - Intermediate Class Piano for Music Majors IV Credit: 1.
 - MUS 2130 - Harmony IV Credit: 2.
 - MUS 2140 - Aural Techniques IV Credit: 1.
 - MUS 3020 - Music History and Literature II Credit: 3.
 - MUS 4510 - Computer Applications in Music Credit: 2.
 - Applied Music Credit: 1.
 - Major Ensemble Credit: 1.
- Total: 16
- Junior Year
- First Semester
- HIST 2010 - Early United States History Credit: 3.
 - Natural Science Credit: 4.
 - MUS 1013 - Recital Class Credit: 0.
 - MUS 1100 - Private Piano Credit: 1-2. (One credit hour required)
 - MUS 3000 - Private Composition Credit: 1-2. (Two credit hours required)
 - MUS 3130 - Form and Analysis Credit: 2.
 - MUS 3950 - Junior Recital Credit: 1.
 - Applied Music Credit: 1.
 - Major Ensemble Credit: 1.
- Total: 15
- Second Semester
- HIST 2020 - Modern United States History Credit: 3.
 - Natural Science Credit: 4.
 - MUS 1013 - Recital Class Credit: 0.
 - MUS 1100 - Private Piano Credit: 1-2. (One credit hour required)
 - MUS 3000 - Private Composition Credit: 1-2. (Two credit hours required)
 - MUS 3140 - Counterpoint Credit: 3.
 - MUS 3210 - Instrumentation Credit: 2.
 - Applied Music Credit: 1.
 - Major Ensemble Credit: 1.
- Total: 17
- Senior Year
- First Semester
- Humanities/Fine Arts Elective Credit: 3.
 - MUED 3620 - Fundamentals of Conducting Credit: 1.
 - MUS 1013 - Recital Class Credit: 0.
 - MUS 3000 - Private Composition Credit: 1-2. (Two credit hours required)
 - MUS 3220 - Jazz Composition and Arranging I Credit: 2.
 - MUS 3710 - Pedagogy and Literature I Credit: 2.
 - MUS 4120 (5120) - Contemporary Music Credit: 2.
 - Applied Music Credit: 1.
 - Major Ensemble Credit: 1.
- Total: 14
- Second Semester
- Social/Behavioral Science Elective Credit: 3.

- MUED 3630 - Instrumental Conducting and Literature Credit: 2. or
- MUED 3640 - Choral Conducting and Literature Credit: 2.

- MUS 1013 - Recital Class Credit: 0.
- MUS 3000 - Private Composition Credit: 1-2. (Two credit hours required)
- MUS 3720 - Pedagogy and Literature II Credit: 2.
- MUS 4000 - Senior Recital Credit: 1.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.

Total: 12

Note:

¹ This course not included in 120-hour curriculum.

**Music, Music Performance Concentration,
Instrumental Option, B.M.
(Leading to the Bachelor of Music Degree)**

Music Performance

Admission to the Performance option is by recommendation of the studio instructor. Students in this option select an emphasis in Composition, Instrumental, Jazz, Piano or Vocal Performance.

Students majoring in any Performance option must:

- Enroll for private study in the major performing medium each semester of full-time residency. Four semesters of private study must be at the 3000 level.
- Participate each semester in the Ensemble of Record specific to the student's instrument:

Lower Division (Freshman and Sophomore)

- Piano: University Choirs, University Bands or University Orchestra or University Jazz Bands
 - Guitar: University Choirs or University Jazz Bands
 - Strings: University Orchestra
 - Voice: Concert Choir or Chorale
 - Wind/Percussion:
- Fall Semester – Marching Band
Spring Semester – Symphony Band or Concert Band as assigned by audition

Upper Division (Junior and Senior)

NOTE: Composition option students follow the Lower Division Ensemble of Record requirement throughout their curriculum. Vocal option students in the Upper Division will enroll in at least one ensemble per semester from the table below as assigned by their advisors. Enrollment in a minimum of two (2) ensembles per semester is required of Upper Division Performance majors in the Instrumental, Jazz and Piano options as follows:

- Piano: The appropriate major ensemble (instrumental or vocal) plus Chamber Music as assigned by the piano coordinator.
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra plus Chamber Music or Bryan Symphony
- Voice: Chorale or Concert Choir
- Wind/Percussion:
 - Jazz: Jazz Ensemble plus Symphony Band or Wind Ensemble
 - All other non-Jazz: Wind Ensemble (Fall) and Symphony Band (Spring) plus University Orchestra or Bryan Symphony Orchestra, or Jazz Ensemble as assigned by the advisor
- Perform as a soloist in public recital during both the Junior and Senior years and, at the discretion of the studio instructor, participate each semester in either studio or departmental recital.
- Attend seven (7) recitals or concerts during each semester of full-time residency.
- Satisfy the proficiency examination in piano.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1021 - Class Voice Techniques I Credit: 1.
- MUS 1120 - Harmony I Credit: 3.
- MUS 1130 - Aural Techniques I Credit: 1.
- UNMU 1020 - First-Year Music Connection (For Music Majors Only) Credit: 1. ¹
- Applied Music Credit: 1. (Two credit hour required)
- Major Ensemble Credit: 1.

Total: 14

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

- MUS 1013 - Recital Class Credit: 0.
- MUS 1030 - Music Appreciation Credit: 3.
- MUS 1070 - Concert Choir Credit: 0-1. (One credit hour required)
- MUS 1140 - Harmony II Credit: 3.
- MUS 1150 - Aural Techniques II Credit: 1.
- Applied Music Credit: 1. (Two credit hour required)
- Major Ensemble Credit: 1.

Total: 17

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- MUS 1013 - Recital Class Credit: 0.
- MUS 1023 - Intermediate Class Piano for Music Majors III Credit: 1.
- MUS 1081 - Improvisation I Credit: 1.
- MUS 2110 - Harmony III Credit: 2.
- MUS 2120 - Aural Techniques III Credit: 1.
- MUS 3010 - Music History and Literature I Credit: 3.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- Social/Behavioral Science Elective Credit: 3.

Total: 17

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- MUS 1013 - Recital Class Credit: 0.
- MUS 1024 - Intermediate Class Piano for Music Majors IV Credit: 1.
- MUS 1082 - Improvisation II Credit: 1.
- MUS 2130 - Harmony IV Credit: 2.
- MUS 2140 - Aural Techniques IV Credit: 1.
- MUS 3020 - Music History and Literature II Credit: 3.
- MUS 4510 - Computer Applications in Music Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 16

Junior Year

First Semester

- HIST 2010 - Early United States History Credit: 3.
- MUED 3620 - Fundamentals of Conducting Credit: 1.
- MUS 1013 - Recital Class Credit: 0.
- MUS 3130 - Form and Analysis Credit: 2.
- MUS 3710 - Pedagogy and Literature I Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- Natural Science Credit: 4.

- Minor Ensemble Credit: 1.

Total: 16

Second Semester

- MUED 3630 - Instrumental Conducting and Literature Credit: 2.
- MUS 1013 - Recital Class Credit: 0.
- MUS 3210 - Instrumentation Credit: 2.
- MUS 3720 - Pedagogy and Literature II Credit: 2.
- Natural Science Credit: 4.
- MUS 3950 - Junior Recital Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- Minor Ensemble Credit: 1.

Total: 15

Senior Year

First Semester

- HIST 2020 - Modern United States History Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 4120 (5120) - Contemporary Music Credit: 2.
- MUS 4710 (5710) - Supervised Teaching Experience I Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- Minor Ensemble Credit: 1.
- Electives Credit: 2.

Total: 13

Second Semester

- Humanities/Fine Arts Elective Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 4000 - Senior Recital Credit: 1.
- MUS 4250 - Recording Techniques Credit: 2.
- MUS 4720 (5720) - Supervised Teaching Experience II Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- Minor Ensemble Credit: 1.

Total: 12

Note:

¹This course not included in 120-hour curriculum.

Music, Music Performance Concentration, Jazz Option, B.M.

(Leading to the Bachelor of Music Degree)

Music Performance

Admission to the Performance option is by recommendation of the studio instructor. Students in this option select an emphasis in Composition, Instrumental, Jazz, Piano or Vocal Performance.

Students majoring in any Performance option must:

- Enroll for private study in the major performing medium each semester of full-time residency. Four semesters

of private study must be at the 3000 level.

- Participate each semester in the Ensemble of Record specific to the student's instrument:

Lower Division (Freshman and Sophomore)

- Piano: University Choirs, University Bands or University Orchestra or University Jazz Bands
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra
- Voice: Concert Choir or Chorale
- Wind/Percussion:
Fall Semester – Marching Band
Spring Semester – Symphony Band or Concert Band as assigned by audition

Upper Division (Junior and Senior)

NOTE: Composition option students follow the Lower Division Ensemble of Record requirement throughout their curriculum. Vocal option students in the Upper Division will enroll in at least one ensemble per semester from the table below as assigned by their advisors. Enrollment in a minimum of two (2) ensembles per semester is required of Upper Division Performance majors in the Instrumental, Jazz and Piano options as follows:

- Piano: The appropriate major ensemble (instrumental or vocal) plus Chamber Music as assigned by the piano coordinator.
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra plus Chamber Music or Bryan Symphony
- Voice: Chorale or Concert Choir
- Wind/Percussion:
 - Jazz: Jazz Ensemble plus Symphony Band or Wind Ensemble
 - All other non-Jazz: Wind Ensemble (Fall) and Symphony Band (Spring) plus University Orchestra or Bryan Symphony Orchestra, or Jazz Ensemble as assigned by the advisor
- Perform as a soloist in public recital during both the Junior and Senior years and, at the discretion of the studio instructor, participate each semester in either studio or departmental recital.

- Attend seven (7) recitals or concerts during each semester of full-time residency.
- Satisfy the proficiency examination in piano.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1021 - Class Voice Techniques I Credit: 1.
- MUS 1120 - Harmony I Credit: 3.
- MUS 1130 - Aural Techniques I Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- UNMU 1020 - First-Year Music Connection (For Music Majors Only) Credit: 1. ¹

Total: 14

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1030 - Music Appreciation Credit: 3.
- MUS 1070 - Concert Choir Credit: 0-1. (One credit required)
- MUS 1140 - Harmony II Credit: 3.
- MUS 1150 - Aural Techniques II Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 14

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3.
- or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- MUS 1013 - Recital Class Credit: 0.
- MUS 1081 - Improvisation I Credit: 1.
- MUS 1023 - Intermediate Class Piano for Music Majors III Credit: 1.
- MUS 1090 - Jazz Ensemble Credit: 0-1. (One credit required)
- MUS 2110 - Harmony III Credit: 2.
- MUS 2120 - Aural Techniques III Credit: 1.
- MUS 3010 - Music History and Literature I Credit: 3.
- MUS 4510 - Computer Applications in Music Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 17

Second Semester

- COMM 2025 - Fundamentals of Communication

Credit: 3. or

- PC 2500 - Communicating in the Professions

Credit: 3.

- MUS 1013 - Recital Class Credit: 0.
- MUS 1024 - Intermediate Class Piano for Music Majors IV Credit: 1.
- MUS 1082 - Improvisation II Credit: 1.
- MUS 1090 - Jazz Ensemble Credit: 0-1. (One credit required)
- MUS 2130 - Harmony IV Credit: 2.
- MUS 2140 - Aural Techniques IV Credit: 1.
- MUS 3020 - Music History and Literature II Credit: 3.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 15

Junior Year

First Semester

- HIST 2010 - Early United States History Credit: 3.
- Natural Science Credit: 4.
- MUED 3620 - Fundamentals of Conducting Credit: 1.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1090 - Jazz Ensemble Credit: 0-1. (One credit required)
- MUS 3130 - Form and Analysis Credit: 2.
- MUS 4110 (5110) - History and Literature of Jazz Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 16

Second Semester

- HIST 2020 - Modern United States History Credit: 3.
- Natural Science Credit: 4.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1090 - Jazz Ensemble Credit: 0-1. (One credit required)
- MUS 3210 - Instrumentation Credit: 2.
- MUS 3950 - Junior Recital Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 14

Senior Year

First Semester

- Social/Behavioral Science Elective Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1090 - Jazz Ensemble Credit: 0-1. (One credit required)
- MUS 3220 - Jazz Composition and Arranging I Credit: 2.
- MUS 3710 - Pedagogy and Literature I Credit: 2.
- MUS 4000 - Senior Recital Credit: 1.
- MUS 4120 (5120) - Contemporary Music Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 14

Second Semester

- Social/Behavioral Science Elective Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1090 - Jazz Ensemble Credit: 0-1. (One credit required)
- MUS 3230 - Jazz Composition and Arranging II Credit: 2.
- MUS 3720 - Pedagogy and Literature II Credit: 2.
- MUS 4250 - Recording Techniques Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 16

Note:

¹This course not included in 120-hour curriculum.

Music, Music Performance Concentration, Piano Option, B.M. (Leading to the Bachelor of Music Degree)

Music Performance

Admission to the Performance option is by recommendation of the studio instructor. Students in this option select an emphasis in Composition, Instrumental, Jazz, Piano or Vocal Performance.

Students majoring in any Performance option must:

- Enroll for private study in the major performing medium each semester of full-time residency. Four semesters of private study must be at the 3000 level.
- Participate each semester in the Ensemble of Record specific to the student's instrument:

Lower Division (Freshman and Sophomore)

- Piano: University Choirs, University Bands or University Orchestra or University Jazz Bands
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra
- Voice: Concert Choir or Chorale
- Wind/ Percussion:

Fall Semester – Marching Band
Spring Semester – Symphony Band or Concert Band as assigned by audition

Upper Division (Junior and Senior)

NOTE: Composition option students follow the Lower Division Ensemble of Record requirement throughout their curriculum. Vocal option students in the Upper Division will enroll in at least one ensemble per semester from the table below as assigned by their advisors. Enrollment in a minimum of two (2) ensembles per semester is required of Upper Division Performance majors in the Instrumental, Jazz and Piano options as follows:

- Piano: The appropriate major ensemble (instrumental or vocal) plus Chamber Music as assigned by the piano coordinator.
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra plus Chamber Music or Bryan Symphony
- Voice: Chorale or Concert Choir
- Wind/Percussion:
 - Jazz: Jazz Ensemble plus Symphony Band or Wind Ensemble
 - All other non-Jazz: Wind Ensemble (Fall) and Symphony Band (Spring) plus University Orchestra or Bryan Symphony Orchestra, or Jazz Ensemble as assigned by the advisor
- Perform as a soloist in public recital during both the Junior and Senior years and, at the discretion of the studio instructor, participate each semester in either studio or departmental recital.
- Attend seven (7) recitals or concerts during each semester of full-time residency.
- Satisfy the proficiency examination in piano.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1016 - Accompanying Credit: 1.
- MUS 1021 - Class Voice Techniques I Credit: 1.
- MUS 1120 - Harmony I Credit: 3.
- MUS 1130 - Aural Techniques I Credit: 1.
- Applied Music Credit: 2.

- Major Ensemble Credit: 1.
- UNMU 1020 - First-Year Music Connection (For Music Majors Only) Credit: 1. ¹

Total: 15

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1016 - Accompanying Credit: 1.
- MUS 1030 - Music Appreciation Credit: 3.
- MUS 1070 - Concert Choir Credit: 0-1. (Required one credit)
- MUS 1140 - Harmony II Credit: 3.
- MUS 1150 - Aural Techniques II Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 15

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- MUS 1013 - Recital Class Credit: 0.
- MUS 1016 - Accompanying Credit: 1.
- MUS 1081 - Improvisation I Credit: 1.
- MUS 2110 - Harmony III Credit: 2.
- MUS 2120 - Aural Techniques III Credit: 1.
- MUS 3010 - Music History and Literature I Credit: 3.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- Social/Behavioral Science Elective Credit: 3.

Total: 17

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- MUS 4510 - Computer Applications in Music Credit: 2.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1016 - Accompanying Credit: 1.
- MUS 1082 - Improvisation II Credit: 1.
- MUS 2130 - Harmony IV Credit: 2.
- MUS 2140 - Aural Techniques IV Credit: 1.
- MUS 3020 - Music History and Literature II Credit: 3.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 16

Junior Year

First Semester

- HIST 2010 - Early United States History Credit: 3.
- Natural Science Credit: 4.
- MUED 3620 - Fundamentals of Conducting Credit: 1.

- MUS 1013 - Recital Class Credit: 0.
- MUS 1016 - Accompanying Credit: 1.
- MUS 3130 - Form and Analysis Credit: 2.
- MUS 3710 - Pedagogy and Literature I Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 16

Second Semester

- HIST 2020 - Modern United States History Credit: 3.
- Natural Science Credit: 4.
- MUS 1005 - Chamber Music Credit: 0-1. (Required one credit)
- MUS 1013 - Recital Class Credit: 0.
- MUS 1016 - Accompanying Credit: 1.
- MUS 3720 - Pedagogy and Literature II Credit: 2.
- MUS 3950 - Junior Recital Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 15

Senior Year

First Semester

- Humanities/Fine Arts Elective Credit: 3.
- Social/Behavioral Science Elective Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1016 - Accompanying Credit: 1.
- MUS 4120 (5120) - Contemporary Music Credit: 2.
- MUS 4710 (5710) - Supervised Teaching Experience I Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 14

Second Semester

- MUS 1013 - Recital Class Credit: 0.
- MUS 1016 - Accompanying Credit: 1.
- MUS 4000 - Senior Recital Credit: 1.
- MUS 4250 - Recording Techniques Credit: 2.
- MUS 4720 (5720) - Supervised Teaching Experience II Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- Upper Division Elective Credit: 3.

Total: 12

Note:

¹This course not included in 120-hour curriculum.

**Music, Music Performance Concentration,
Vocal Option, B.M.
(Leading to the Bachelor of Music Degree)**

Music Performance

Admission to the Performance option is by recommendation of the studio instructor. Students in this option select an emphasis in Composition, Instrumental, Jazz, Piano or Vocal Performance. Students majoring in any Performance option must:

- Enroll for private study in the major performing medium each semester of full-time residency. Four semesters of private study must be at the 3000 level.

- Participate each semester in the Ensemble of Record specific to the student's instrument:

Lower Division (Freshman and Sophomore)

- Piano: University Choirs, University Bands or University Orchestra or University Jazz Bands
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra
- Voice: Concert Choir or Chorale
- Wind/Percussion:
Fall Semester – Marching Band
Spring Semester – Symphony Band or Concert Band as assigned by audition

Upper Division (Junior and Senior)

NOTE: Composition option students follow the Lower Division Ensemble of Record requirement throughout their curriculum. Vocal option students in the Upper Division will enroll in at least one ensemble per semester from the table below as assigned by their advisors. Enrollment in a minimum of two (2) ensembles per semester is required of Upper Division Performance majors in the Instrumental, Jazz and Piano options as follows:

- Piano: The appropriate major ensemble (instrumental or vocal) plus Chamber Music as assigned by the piano coordinator.
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra plus Chamber Music or Bryan Symphony
- Voice: Chorale or Concert Choir
- Wind/Percussion:
 - Jazz: Jazz Ensemble plus Symphony Band or Wind Ensemble
 - All other non-Jazz: Wind Ensemble (Fall) and Symphony Band (Spring) plus University Orchestra or Bryan Symphony Orchestra, or Jazz

Ensemble as assigned by the advisor

- Perform as a soloist in public recital during both the Junior and Senior years and, at the discretion of the studio instructor, participate each semester in either studio or departmental recital.
- Attend seven (7) recitals or concerts during each semester of full-time residency.
- Satisfy the proficiency examination in piano.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1120 - Harmony I Credit: 3.
- MUS 1130 - Aural Techniques I Credit: 1.
- MUS 1210 - Diction for Singers I Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- UNMU 1020 - First-Year Music Connection (For Music Majors Only) Credit: 1. ¹

Total: 14

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1030 - Music Appreciation Credit: 3.
- MUS 1140 - Harmony II Credit: 3.
- MUS 1150 - Aural Techniques II Credit: 1.
- MUS 1220 - Diction for Singers II Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- Social/Behavioral Science Elective Credit: 3.

Total: 17

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3.
or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- Social/Behavioral Science Elective Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1023 - Intermediate Class Piano for Music Majors III Credit: 1.
- MUS 2110 - Harmony III Credit: 2.
- MUS 2120 - Aural Techniques III Credit: 1.
- MUS 3006 - Opera Workshop Credit: 0-1. (One credit hour required)
- MUS 3010 - Music History and Literature I

Credit: 3.

- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 17

Second Semester

- COMM 2025 - Fundamentals of Communication Credit: 3. or
- PC 2500 - Communicating in the Professions Credit: 3.

- MUS 1013 - Recital Class Credit: 0.
- MUS 1024 - Intermediate Class Piano for Music Majors IV Credit: 1.
- MUS 2130 - Harmony IV Credit: 2.
- MUS 2140 - Aural Techniques IV Credit: 1.
- MUS 3020 - Music History and Literature II Credit: 3.
- MUS 4510 - Computer Applications in Music Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 15

Junior Year

First Semester

- HIST 2010 - Early United States History Credit: 3.
- Natural Science Credit: 4.
- Foreign Language Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 3006 - Opera Workshop Credit: 0-1. (One credit hour required)
- MUS 3130 - Form and Analysis Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 16

Second Semester

- HIST 2020 - Modern United States History Credit: 3.
- Natural Science Credit: 4.
- Foreign Language Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 3950 - Junior Recital Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 14

Senior Year

First Semester

- Humanities/Fine Arts Elective Credit: 3.
- MUED 3620 - Fundamentals of Conducting Credit: 1.
- MUS 1013 - Recital Class Credit: 0.
- MUS 3240 - Choral Literature Credit: 2.
- MUS 3800 - Vocal Pedagogy and Literature I Credit: 2.
- MUS 4120 (5120) - Contemporary Music Credit: 2.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.
- Upper Division Electives Credit: 2.

Total: 15

Second Semester

- Humanities/Fine Arts Elective Credit: 3.
- MUED 4510 - Special Problems Credit: 1-2. or
- MUED 4520 - Special Problems Credit: 1-2. (Two credit hours required)
- MUS 1013 - Recital Class Credit: 0.
- MUS 3006 - Opera Workshop Credit: 0-1. (One credit hour required)
- MUS 3810 - Vocal Pedagogy and Literature II Credit: 2.
- MUS 4000 - Senior Recital Credit: 1.
- Applied Music Credit: 2.
- Major Ensemble Credit: 1.

Total: 12

Note:

¹This course not included in 120-hour curriculum.

**Music, Vocal/General Music, K-12 Licensure Concentration, B.M.
(Leading to the Bachelor of Music Degree and the
Apprentice License, with endorsement, Grades K-12)**

Music Education

Students majoring in music education will follow either the Instrumental or Vocal/General curriculum. Students must select a major performing medium for private study; Instrumental Majors select a band or orchestral concentration, and Vocal/General majors select voice, piano, or organ.

Moreover, music education students must:

- Enroll for private study in the major performing medium each semester of full-time residency.
- Participate each semester in the Ensemble of Record specific to the student's instrument:
- Piano: Vocal Track: University Choirs; Instrumental Track: University Bands, University Orchestra, or University Jazz Bands
- Guitar: University Choirs or University Jazz Bands
- Strings: University Orchestra
- Voice: Concert Choir or Chorale
- Wind/Percussion:
- Fall Semester – Marching Band
- Spring Semester – Symphony Band or Concert Band as assigned by audition
- Participate each semester in either studio or departmental recital and, at the discretion of the studio instructor, perform as a soloist in public recital.
- Attend seven (7) recitals or concerts during each semester of full-time residency.
- Satisfy the proficiency examination in piano.

Curriculum

Freshman Year

First Semester

- ENGL 1010 - English Composition I Credit: 3.
- MATH Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1120 - Harmony I Credit: 3.
- MUS 1130 - Aural Techniques I Credit: 1.
- MUS 1210 - Diction for Singers I Credit: 1.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.
- UNMU 1020 - First-Year Music Connection (For Music Majors Only) Credit: 1. ¹

Total: 13

Second Semester

- ENGL 1020 - English Composition II Credit: 3.
- Social/Behavioral Science Elective Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 1030 - Music Appreciation Credit: 3.
- MUS 1140 - Harmony II Credit: 3.
- MUS 1150 - Aural Techniques II Credit: 1.
- MUS 1220 - Diction for Singers II Credit: 1.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.

Total: 16

Sophomore Year

First Semester

- ENGL 2130 - Topics in American Literature Credit: 3. or
- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.
- MUS 1023 - Intermediate Class Piano for Music Majors III Credit: 1. or
- MUS 1016 - Accompanying Credit: 1.

- MUED 1820 - Introduction to Music Education Credit: 1. (Fall Only)
 - MUS 1013 - Recital Class Credit: 0.
 - MUS 2110 - Harmony III Credit: 2.
 - MUS 2120 - Aural Techniques III Credit: 1.
 - MUS 3010 - Music History and Literature I Credit: 3.
 - Natural Science Credit: 4.
 - Applied Music Credit: 1.
 - Major Ensemble Credit: 1.
- Total: 17

Second Semester

- PC 2500 - Communicating in the Professions Credit: 3. or
- COMM 2025 - Fundamentals of Communication Credit: 3.
- MUS 1016 - Accompanying Credit: 1. or
- MUS 1024 - Intermediate Class Piano for Music Majors IV Credit: 1.

- EDPY 2210 - Educational Psychology Credit: 3.
- MUS 1013 - Recital Class Credit: 0.
- MUS 2130 - Harmony IV Credit: 2.
- MUS 2140 - Aural Techniques IV Credit: 1.
- MUS 3020 - Music History and Literature II Credit: 3.
- Natural Science Credit: 4.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.

Total: 19

Junior Year

First Semester

- HIST 2010 - Early United States History Credit: 3.
- MUED 3110 - Materials and Methods in Music, Grades K-5 Credit: 3.
- MUED 3620 - Fundamentals of Conducting Credit: 1.
- MUS 1013 - Recital Class Credit: 0.
- MUS 3130 - Form and Analysis Credit: 2.
- MUS 3240 - Choral Literature Credit: 2.
- MUS 3800 - Vocal Pedagogy and Literature I Credit: 2.

- Applied Music Credit: 1.

- Major Ensemble Credit: 1.

Total: 15

Second Semester

- Elective Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- Social/Behavioral Science Elective Credit: 3.
- MUED 3140 - Materials and Methods in Vocal Music, Grades 6-12 Credit: 3.
- MUED 3640 - Choral Conducting and Literature Credit: 2.
- MUS 1013 - Recital Class Credit: 0.
- MUS 4510 - Computer Applications in Music Credit: 2.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.

Total: 18

Senior Year

First Semester

- MUED 4871 - Residency I Credit: 5.
- MUED 4872 - Professional Seminar I Credit: 5.
- MUS 4000 - Senior Recital Credit: 1.
- Applied Music Credit: 1.
- Major Ensemble Credit: 1.

Total: 13

Second Semester

- MUED 4881 - Residency II Credit: 10.
- MUED 4882 - Professional Seminar II Credit: 2.

Total: 12

Note:

¹This course not included in 123-hour curriculum.

²Must submit evidence of current First Aid/CPR training.
Additional Licensure: Instrumental Music Education

The above curriculum is necessary for licensure in Vocal/General Music. If licensure in Instrumental Music Education is also desired, then the following courses also need to be completed:

- MUED 3130 - Materials and Methods in Instrumental Music, Grades 6-12 Credit: 3.
- MUED 3830 - Practicum in Music Education II, Instrumental Credit: 1.
- MUS 1000 - Private Composition Credit: 1-2. (band/orch. Inst)
- MUS 1033 - Marching Band Credit: 0-1.
- MUS 1085 - University Orchestra Credit: 0-1.
- MUS 1045 - Concert Band Credit: 0-1.
- MUED 3230 - Marching Band Techniques Credit: 2.
- MUS 1031 - String Techniques I Credit: 1.
- MUS 1041 - Woodwind Techniques I Credit: 1.
- MUS 1051 - Brass Techniques I Credit: 1.
- MUS 1071 - Percussion Techniques I Credit: 1.

Department of Physics

Bachelor of Science

Physics, B.S.

(Leading to the Bachelor of Science Degree)

Option I

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- MATH 1910 - Calculus I Credit: 4.
- PHYS 1020 - First-Year Connections Credit: 1.

Total: 15

Second Semester

- CHEM 1120 - General Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- MATH 1920 - Calculus II Credit: 4.
- PHYS 2110 - Calculus-based Physics I Credit: 4.
- PHYS 1137 - Frontiers of Physics Credit: 1.

Total: 16

Sophomore Year

First Semester

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.

- ENGL 2130 - Topics in American Literature Credit: 3.
- or

- ENGL 2235 - Topics in British Literature Credit: 3. or
- ENGL 2330 - Topics in World Literature Credit: 3.

- MATH 2110 - Calculus III Credit: 4.
- PHYS 2120 - Calculus-based Physics II Credit: 4.

Total: 15

Second Semester

- CSC 1310 - Data Structures and Algorithms Credit: 4.
- MATH 2120 - Differential Equations Credit: 3.
- PC 2500 - Communicating in the Professions Credit: 3.
- PHYS 2420 - Modern Physics Credit: 3.
- PHYS 2920 - Mathematical Physics Credit: 3.

Total: 16

Junior Year

First Semester

- Humanities/Fine Arts Elective Credit: 3.
- MATH 3470 - Introductory Probability and Statistics Credit: 3.
- MATH 4510 (5510) - Advanced Mathematics for Engineers Credit: 3.

- PHYS 3120 - Statistical Thermal Physics Credit: 3. ¹ or

- PHYS 3610 - Classical Mechanics Credit: 3. ¹

- PHYS 4610 - Classical Electricity and Magnetism I Credit: 3.

Total: 15

Second Semester

- MATH 3810 - Complex Variables Credit: 3.
- PHYS 3810 - Quantum Mechanics I Credit: 3.
- PHYS 4620 - Classical Electricity and Magnetism II Credit: 3.

- PHYS 4710 - Advanced Experimental Physics Credit: 4. or

- PHYS 4720 - Advanced Experimental Physics Credit: 4.

- Social/Behavioral Science Elective Credit: 3.

Total: 16

Senior Year

First Semester

- Elective Credit: 3.
- HIST 2010 - Early United States History Credit: 3.

- PHYS 3610 - Classical Mechanics Credit: 3. ¹ or
- PHYS 3120 - Statistical Thermal Physics Credit: 3. ¹

- PHYS 3820 - Quantum Mechanics Credit: 3.

- PHYS 4730 - Research Planning Credit: 1.

- Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

- Electives Credit: 4.
- HIST 2020 - Modern United States History Credit: 3.
- PHYS 4130 - Computational Physics Credit: 3.
- PHYS 4740 - Research Credit: 2.

Total: 13

Note:

¹ Both PHYS 3120 and PHYS 3610 are required and will be offered in alternate years.

Option II

Curriculum

Freshman Year

First Semester

- CHEM 1110 - General Chemistry I Credit: 4.
- ENGL 1010 - English Composition I Credit: 3.
- Humanities/Fine Arts Elective Credit: 3.
- MATH 1910 - Calculus I Credit: 4.
- PHYS 1020 - First-Year Connections Credit: 1.

Total: 15

Second Semester

- CHEM 1120 - General Chemistry II Credit: 4.
- ENGL 1020 - English Composition II Credit: 3.
- MATH 1920 - Calculus II Credit: 4.
- PHYS 1137 - Frontiers of Physics Credit: 1.
- PHYS 2110 - Calculus-based Physics I Credit: 4.

Total: 16

Sophomore Year

First Semester

- CSC 1300 - Introduction to Problem Solving and Computer Programming Credit: 4.

- ENGL 2130 - Topics in American Literature Credit: 3. or

- ENGL 2235 - Topics in British Literature Credit: 3. or

- ENGL 2330 - Topics in World Literature Credit: 3.

- MATH 2110 - Calculus III Credit: 4.

- PHYS 2120 - Calculus-based Physics II Credit: 4.

Total: 15

Second Semester

- MATH 2120 - Differential Equations Credit: 3.
- PC 2500 - Communicating in the Professions Credit: 3.

- PHYS 2420 - Modern Physics Credit: 3.

- PHYS 2920 - Mathematical Physics Credit: 3.

- Science/Engineering¹ Credit: 4.

Total: 16

Junior Year

First Semester

- Humanities/Fine Arts Elective Credit: 3.
- MATH 3470 - Introductory Probability and Statistics Credit: 3.

- MATH 4510 (5510) - Advanced Mathematics for Engineers Credit: 3.

- PHYS 3120 - Statistical Thermal Physics Credit: 3. ² or

- PHYS 3610 - Classical Mechanics Credit: 3.

- PHYS 4610 - Classical Electricity and Magnetism I
Credit: 3.

Total: 15

Second Semester

- PHYS 3810 - Quantum Mechanics I Credit: 3.
- PHYS 4620 - Classical Electricity and Magnetism II
Credit: 3.
- PHYS 4711 - Advanced Experimental Physics Credit:
2.
- Science/Engineering¹ Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

Total: 14

Senior Year

First Semester

- Elective Credit: 3.
- HIST 2010 - Early United States History Credit: 3.
- PHYS 3120 - Statistical Thermal Physics Credit: 3.
- PHYS 3610 - Classical Mechanics Credit: 3.
- PHYS 3820 - Quantum Mechanics Credit: 3.
- Social/Behavioral Science Elective Credit: 3.

Total: 15

Second Semester

- Elective Credit: 3.
- HIST 2020 - Modern United States History Credit: 3.
- PHYS 4130 - Computational Physics Credit: 3.

- PHYS 4710 - Advanced Experimental Physics Credit:
4. or
- PHYS 4720 - Advanced Experimental Physics Credit:
4.

Total: 13

Note:

¹Students in Option II will select an approved program of at least 14 semester hours in other areas of science or engineering. At least 8 of these 14 hours must be in upper division courses.

²Both PHYS 3120 and 3610 are required and will be offered in alternate years.

- SOC 3910 Social Science Statistical Analysis
- SOC 4920 (5920) Data Analysis and Management or
- SOC 4930 (5930) Field Research Methods
- Foreign Language (3) (Culture and Civilization courses do not qualify)
- Electives in Social Sciences/Philosophy (9)
Students will take 9 hours of elective courses in the social sciences/philosophy consisting of any course that meets the Social/Behavioral Sciences General Education Requirement, and/or are from the disciplines of: anthropology, criminal justice, economics, geography, philosophy, political science, psychology, social work, or sociology.

Note: For the criminal justice concentration 3 hours of the electives in Social Sciences/Philosophy must be at the upper

division level. The social work concentration meets the Social Sciences/Philosophy requirement by 9 hours embedded in the major (PSY 1030, PSY elective, and PHIL 2250).

Additional graduation requirements must be satisfied including but not limited to: a total of 120 semester hours; a total of

36 hours earned at the upper division (3000 or 4000 level courses); and, satisfactory completion of the general education requirements. Students are responsible for ensuring that they meet all requirements for graduation, and should consult with their academic advisor on a regular basis.

To complete the general sociology track:

In addition to the required core of 27 hours, students will complete an additional 21 hours of elective courses chosen from courses with a sociology, criminal justice, or social work prefix. **A minimum of 15 hours must be at the upper division level.**

Total hours in the major: 48.

Total hours of sociology/SW/CJ courses: 36-45.

Total hours required for graduation: 120.

To complete the criminal justice track:

The Criminal Justice Program offers a baccalaureate (B.S.) concentration, in criminal justice. The B.S. concentration involves a major in Sociology with a large proportion of course work in criminal justice.

Those who complete the B.S. degree will have a sound foundation that prepares them to compete for positions in law enforcement, corrections and social service agencies, or for admission to law school.

To complete the criminal justice track:

In addition to the required core of 27 hours, students will also be required to take:

[SW 1800 Introduction to Social Work](#)

[SW 4100 \(5100\) Probation and Parole](#)

Department of Sociology and Political Science

Sociology Major

The Sociology Major at Tennessee Tech University leads to the Bachelor of Science Degree and includes three tracks:

a Bachelor of Science in Sociology; a Bachelor of Science in Sociology with a concentration in criminal justice; and, a Bachelor of Science in Sociology with a concentration in social work.

Core of Required Courses Common to the Major (all three tracks): (27 hours)

- SOC 1010 Introduction to Sociology
- SOC 3100 Sociological Theory
- SOC 3900 Introduction to Social Research

[SW 4120 \(5120\) Case Management](#)

[SW 4900 \(5900\) Internship](#)

[PHIL 2250 Introductory Ethics](#)

[POLS 1000 American Government](#)

[PSY 2010 General Psychology](#)

PSY Additional Course or [EDPY 2200 Educational Psychology](#) (3)

Students will complete an additional 15 hours of elective

¹ Any general education Mathematics course. MATH 1010 - Math for General Studies recommended.

² The minimum is a course in a specific language. None of the "Country and the People" courses are acceptable.

³ UNIV 1020 or equivalent is required for first time Freshmen. Students not required to take UNIV 1020 may take a general elective. See your academic advisor.

A total of 120 hours is required for graduation with a minimum of 36 hours of Upper Division coursework. Courses chosen from courses with a sociology, criminal justice, or social work prefix. A **minimum of 9 hours** must be at the upper division level

Total hours in the major: 57.

Total hours of sociology/SW/CJ courses: 42-51.

Total hours required for graduation: 120.

Political Science Major

The Political Science major at Tennessee Tech University is part of a 120 hour degree program with at least 36 of the required 120 hours at the upper division level (courses numbered at the 3000 or 4000 level). The Political Science Major at Tennessee Tech University leads to the Bachelor of Science Degree and includes three tracks: a Bachelor of Science in Political Science; a Bachelor of Science in Political Science with a concentration in Legal Studies; and a Bachelor of Science in Political Science with a concentration in International Relations and Comparative Government.

The departmental requirements for the major consist of a total of 54 hours including:

[POLS 1000 - American Government](#) Credit 3.

[POLS 1100 - Introduction to Political Science](#) Credit 3.

Electives in Political Science Credit 24.

Foreign Language Credit 6. (At least 3 hours must be in a language course. The other 3 hours may be in language or in a culture related course.)

Computer skills—

[DS 2810 - Computer Applications in Business](#) Credit 3.
or

[CSC 1100 - Introduction to Computing](#) Credit 3.

History—upper division course Credit 6.

Social Science, Criminal Justice, or Philosophy Electives Credit 6.

English—upper division course Credit 3.

Total departmental requirements for the major: 54 hrs.

COURSE DESCRIPTIONS

Accounting

ACCT 1040 - Personal Tax

Lec. 3. Credit 3.
Preparation of federal income tax returns for individuals, with some emphasis on tax planning. To receive credit for both ACCT 1040 and ACCT 3330, ACCT 1040 must be taken prior to enrolling in ACCT 3330 or its equivalent.

ACCT 2110 - Principles of Accounting I

Lec. 3. Credit 3.
Prerequisite: Sophomore standing or consent of instructor. Fundamental principles and procedures of financial accounting.

(ACCT 1010, TTP Course)

ACCT 2120 - Principles of Accounting II

Lec. 3. Credit 3.
Prerequisite: ACCT 2110. Fundamental principles and procedures of financial and managerial accounting.

(ACCT 1020, TTP Course)

ACCT 3170 - Financial Accounting and Reporting I

Lec. 3. Credit 3.
Prerequisite: ACCT 2110 and ACCT 2120 with grades of C or better. Contemporary theory and procedures that provide information for reports of the financial positions, results of operations and cash flows of modern business corporations. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program. Accounting majors must earn a grade of C or better to graduate.

ACCT 3180 - Financial Accounting and Reporting II

Lec. 3. Credit 3.
Prerequisite: ACCT 3170 with a grade of C or better. Continuation of ACCT 3170 with emphasis on specific problem areas. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program. Accounting majors must earn a grade of C or better to graduate.

ACCT 3190 - Financial Accounting and Reporting III

Lec. 3. Credit 3.
Continuation of ACCT 3180. In-depth treatment of accounting and reporting for non-current liabilities and equity, share-based compensation, accounting changes and error corrections, and the statement of cash flows. Emphasis is placed on the development of technical accounting skills including basic theory, valuation, and measurement. Enrollment in junior or senior level accounting classes requires junior standing. Accounting majors must earn a C or better to graduate.

ACCT 3210 - Cost Accounting

Lec. 3. Credit 3.
Prerequisite: ACCT 2120 with a grade of C or better. Procedures for providing accounts and reports of cost information to management for planning, controlling, pricing and external reporting. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program. Accounting majors must earn a grade of C or better to graduate.

ACCT 3330 - Federal Taxation I

Lec. 3. Credit 3.
Prerequisite: ACCT 3170 with a grade of C or better. A survey of the basic concepts of taxation and the impact of federal taxation on individuals, business income and property transactions. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program. Accounting majors must earn a grade of C or better to graduate.

ACCT 3620 - Auditing I

Lec. 3. Credit 3.
Prerequisite: ACCT 3170 with a grade of C or better. Introduction to the theory and practice of financial statement audits. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program. Accounting majors must earn a grade of C or better to graduate.

ACCT 3720 - Survey of Accounting

Lec. 3. Credit 3.
Basic accounting principles, financial statements, cost behavior, cost accounting systems, and

costing for management decisions. Open to non-business majors only. Credit will not be granted for both ACCT 2110 or ACCT 2120 and ACCT 3720.

ACCT 4230 (5230) - Advanced Managerial Accounting

Lec. 3. Credit 3.

Prerequisite: ACCT 3210 with a grade of C or better. Selected problems in cost accounting with emphasis on managerial uses of cost information. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program. Students may not receive credit for both the 4000-level and the 5000-level of the same class.

ACCT 4300 (5300) - Financial Statement Analysis

Lec. 3. Credit 3.

Prerequisite: A grade of C or better in ACCT 3170 or FIN 3210, admission to the College of Business Graduate Program, or permission of instructor. In-depth study of the methodologies used to analyze financial statements. Emphasis is placed on the use of technology to understand and apply ratio analysis.

ACCT 4340 - Tax Management for Entities

Lec. 3. Credit 3.

Prerequisite: ACCT 3330. Use of tax law and accounting data by management in planning, controlling, and decision making for business entities. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program.

ACCT 4410 - Financial Accounting and Reporting III

Lec. 3. Credit 3.

Prerequisite: ACCT 3180 with a grade of C or better. Theory and problems relating to consolidations and liquidations, international accounting, governmental accounting and partnerships. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program.

ACCT 4530 - Governmental and Not-For-Profit Accounting

Lec. 3. Credit 3.

Prerequisite: ACCT 2110 and ACCT 2120 with minimum grades of C. Accounting, reporting, and budgeting for governmental entities and other not-for-profit organizations, including coverage of healthcare and

voluntary welfare organizations. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program.

ACCT 4600 (5600) - Forensic Accounting and Fraud Auditing

Lec. 3. Credit 3.

Prerequisite: Junior standing in the accounting major. Exposure to applicable authoritative literature, as well as to tools and methods used by modern forensic accountants and auditors to identify accounting and financial statement frauds. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program. Students may not receive credit for both the 4000-level and the 5000-level of the same class.

ACCT 4700 (5700) - International Experiences in Accounting

Lec. 3. Credit 3.

Prerequisite: Consent of instructor and Department Chairperson. A short-term study abroad program highlighting selected historical and modern contributions to accounting and business from another country and culture. Course will also meet weekly during the semester. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program. Accounting majors must earn a grade of C or better to graduate. Students may not receive credit for both the 4000-level and the 5000-level of the same class.

ACCT 4750 - Auditing in an EDP Environment

Lec. 3. Credit 3.

Prerequisite: ACCT 3620. Audit concepts and practices applied to accounting information systems in a microcomputer environment. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program.

ACCT 4800 - Internship in Accounting

Lec. 3. Credit 3.

Prerequisite: Consent of Department Internship Coordinator or Department Chairperson and, if for graduate credit, consent of MBA Director. A directed current professional experience in accounting. Graduate credit requires a field research project. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program.

ACCT 4900 - Special Topics

Credit 3.

Prerequisite: Consent of Instructor and Department Chairperson. An advanced course concerning current topics in Accounting, Auditing, Taxation, and Business Law. Course may be taken more than once as topics change. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program.

ACCT 4901 - Special Topics

Credit 1.

Prerequisite: Consent of Instructor and Department Chairperson. An advanced course concerning current topics in Accounting, Auditing, Taxation, and Business Law. Course may be taken more than once as topics change. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program.

ACCT 4902 - Special Topics

Credit 2.

Prerequisite: Consent of Instructor and Department Chairperson. An advanced course concerning current topics in Accounting, Auditing, Taxation, and Business Law. Course may be taken more than once as topics change. Enrollment in junior or senior level accounting courses requires junior standing. All business majors must have completed the Basic Business Program.

Agriculture and Human Ecology

AGHE 1020 - Connections in Agriculture and Human Ecology

Lec. 2. Credit 1.

Prerequisite: Freshman classification. Connects students to the university and College of Agriculture & Human Ecology through meaningful academic and non-academic, out-of-classroom activities. Emphasizes critical thinking in the formation of academic and social groups, group participation, and in self management and study skills.

AGHE 2022 - Professionalism in Agriculture and Human Ecology

Lec. 1. Credit 1.

Appropriate social and professional standards of behavior as applied to the community and workplace environments.

AGHE 3000 - (WSL2) Leadership and Service

Lec. 3. Credit 3.

This course serves as an opportunity for students to have a greater understanding of leadership as it pertains to their lives. We will explore leadership models, roles of leaders and followers, concepts of effective leadership, and ethical issues, with special focus on leadership as service in teams, organizations, communities, and society. The course is also intended to assist students in identifying and defining leadership on a personal level. Students will learn through reading, observing, applying, creating, and evaluating leadership in an organizational context.

AGHE 3200 - Study Abroad Exploration

Credit 1-6.

Prerequisite: Sophomore standing and/or 30 credit hours toward degree program. This study abroad program would provide students an avenue to explore global cultures, build sustainable, service learning projects, engage in global dialogues directly related to their degree programs, and hone their communication and critical thinking skills via a plethora of learning opportunities. This course may be repeated.

AGHE 3275 - Research in Agriculture and Human Ecology

Lec. 3. Credit 3.

Prerequisite: Sophomore standing, AGHE 2022. Comprehensive introduction to research methodologies, proposal writing and research presentation techniques. Also introduces applications of research to fields of practice.

AGHE 3900 - Leadership for Ambassadors

Cross-listing: AGR 3900

Lec. 1. Credit 1.

Prerequisite: Consent of instructor. Application of leadership skills while serving as Ambassador for the College of Agriculture and Human Ecology.

AGHE 3901 - Leadership for Ambassadors

Cross-listing: AGR 3901

Lec. 1. Credit 1.

Prerequisite: Consent of instructor. Application of leadership skills while serving as Ambassador for the College of Agriculture and Human Ecology.

AGHE 3902 - Leadership for Ambassadors

Lec. 1. Credit 1.

Prerequisite: Consent of instructor. Application of leadership skills while serving as Ambassador for the College of Agriculture and Human Ecology.

AGHE 3903 - Leadership for Ambassadors

Cross-listing: AGR 3903.

Lec. 2. Credit 1.

Prerequisite: Consent of instructor. Application of leadership skills while serving as Ambassador for the College of Agriculture and Human Ecology.

AGHE 4500 - Senior Seminar

Lec. 1. Credit 1.

Prerequisite: Senior standing. Application of leadership and professional skills in Agriculture and Human Ecology. Public policy and advocacy guidelines for the professions of Agriculture and Human Ecology.

AGHE 4600 (5600) - Global Food Systems: Sustainability and Insecurity

Lec. 3. Credit 3.

Relationships of global food systems to environmental and human health. Dynamics of societal issues, population, food production, biodiversity, biotechnology and economics on food insecurity.

Agribusiness Economics

AGBE 2010 - World Food and Society

Lec. 3. Credit 3.

Food production and distribution for the advancement of societies in developed and developing countries.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences).

AGBE 2100 - Economics of Agriculture

Lec. 3. Credit 3.

Economic principles as they relate to agriculture, and the place of agriculture and agribusiness in the national economy.

AGBE 3100 - Agricultural Marketing

Lec. 3. Credit 3.

Prerequisite: AGBE 2100. An overview of the US agricultural marketing system. The functions of the marketing system will be covered as well as current marketing problems and possibilities for improvement.

AGBE 3120 - Agricultural Price Analysis

Spring. (O) Lec. 3. Credit 3.

Prerequisite: AGBE 2100. Principles of price determination, price indexes and their use, parity price, and tools of price analysis.

(O) and (E) Denote Odd and Even Years Respectively

AGBE 3220 - Data Acquisition and Computer Analysis in Agribusiness

Lec. 3. Credit 3.

Prerequisite: AGBE 2100 and MATH 1130 or higher. Where agricultural data comes from and its use in analyzing complex and unique problems facing the agricultural firm. Specific emphasis on financial, statistical spreadsheet functions will be addressed. Additional topics include data analysis, data organization and communication.

AGBE 3400 - Agricultural Finance

Spring. Lec. 3. Credit 3.

Prerequisite: ACCT 2110. Financial statements and analyses for farms and agribusiness firms, time value of money, capital and credit requirements, and sources.

AGBE 3950 - Agribusiness Internship

Credit 3.

Prerequisite: AGBE 2100 and junior standing.

Supervised off-campus internship in production agriculture, or the agricultural service industry, or an agricultural agency of the government. A minimum of eight weeks of full-time work is required to fulfill three credit hours.

AGBE 4030 - Agribusiness Management

Lec. 3. Credit 3.

Prerequisite: AGBE 2100 and AGBE 3400. Economics and business principles applied to farm management, resources allocation, budgeting, and records. Students who have not had prerequisites can request permission from the instructor.

AGBE 4120 (5120) - Natural Resource Economics

Fall. Lec. 3. Credit 3.

Prerequisite: AGBE 2100 or ECON 2010. Static and dynamic models of renewable and non-renewable resource allocation. Application of principles of economics will identify the causes, consequences, and ways of dealing with natural resource problems, including problems associated with fisheries, forests, water problems and land.

AGBE 4130 - Agricultural Policy

Lec. 3. Credit 3.

Prerequisite: AGBE 2100. Rural and urban values, farm

problems, relationship of agriculture to public policy, policy vs. programs, and appraisal of program results.

AGBE 4940 (5940) - Agribusiness Economics Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agribusiness economics under the supervision of a member of the School of Agriculture faculty.

AGBE 4950 (5950) - Agribusiness Economics Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agribusiness economics under the supervision of a member of the School of Agriculture faculty.

AGBE 4960 - Agribusiness Economics Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agribusiness economics under the supervision of a member of the School of Agriculture faculty.

AGBE 4970 - Agribusiness Economics Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agribusiness economics under the supervision of a member of the School of Agriculture faculty.

AGBE 4980 - Agribusiness Economics Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agribusiness economics under the supervision of a member of the School of Agriculture faculty.

Agricultural Communications

AGCM 4850 - Internship in Agricultural Communications

Credit 4.

Prerequisite: Senior standing in Agricultural Communications. Supervised internship in an educational, Extension, or agricultural business/agency involving agricultural communications and related fields.

AGCM 4860 - Internship in Agricultural Communications

Credit 4.

Prerequisite: Senior standing in Agricultural Communications. Supervised internship in an educational, Extension, or agricultural business/agency involving agricultural communications and related fields.

Agricultural Education

AGED 2120 - Introduction to Agricultural and Extension Education

Lec. 2. Lab. 2. Credit 3.

History, philosophy, goals, objectives and current issues in agricultural and extension programs. Early field experience in a high school Agricultural Education program or a County Agricultural Extension Service program.

AGED 3010 - Professional Leadership Development

Lec. 2. Lab. 2. Credit 3.

Leadership styles and roles and their implications for agricultural professionals; developing leadership, communication and interpersonal skills; planning and conducting effective meetings.

AGED 4110 - Methods of Teaching Agriscience

Lec. 2. Lab. 2. Credit 3.

Planning, implementing and evaluating the high school Agriscience course offered for science credit; course and lesson planning; laboratory facilities and equipment; and instructional methods and techniques for Agriscience.

AGED 4150 (5150) - Communications and Public Relations in Agricultural and Extension Education

Lec. 3. Credit 3.

Publics to be dealt with, public relations media, techniques of establishing and maintaining desirable communications, and public relations in agriculture.

AGED 4200 (5200) - Methods and Techniques of Teaching in Agricultural and Extension Education

Lec. 2. Lab. 2. Credit 3.

Theory and practice in directing learning activities; planning and delivering instruction to formal and informal groups in Agricultural and Extension Education; preparing instructional materials; and using instructional technology.

AGED 4250 (5250) - Use of Volunteers in Agricultural and Extension Education

Lec. 3. Credit 3.

Developing skills in selecting, recruiting, training,

coordinating, supervising, and evaluating volunteers in Agricultural and Extension Education.

AGED 4300 (5300) - Development of Youth Programs in Agricultural and Extension Education

Lec. 3. Credit 3.

Developing, implementing and evaluating the 4-H and FFA youth programs in Agricultural and Extension Education; identifying needs and interests of youth; and identifying, securing, and developing supportive resources.

AGED 4350 (5350) - Program Planning and Evaluation in Agricultural and Extension Education

Lec. 3. Credit 3.

Advanced principles and procedures used in planning and evaluating Agricultural and Extension Education programs.

AGED 4850 - Internship

Credit 4.

Prerequisite: * Senior standing. Supervised internship in an educational, extension, or agricultural business/agency involving agricultural communications and related fields.

* No more than a total of 12 credits of Work Experience, Internship, and/or Co-op or any combination of these may apply toward the Bachelor of Science degree in Agriculture.

AGED 4860 - Internship

Credit 4.

Prerequisite: * Senior standing. Supervised internship in an educational, extension, or agricultural business/agency involving agricultural communications and related fields.

* No more than a total of 12 credits of Work Experience, Internship, and/or Co-op or any combination of these may apply toward the Bachelor of Science degree in Agriculture.

AGED 4870 - Student Teaching in Agricultural Education I

Credit 5.

Prerequisite: full admission to Teacher Education Program; senior classification. Corequisite: AGED 4880, AGED 4890. Application for student teaching should be made at least two semesters in advance, excluding the summer term. All activities directly related to teaching

performance, such as planning and presenting lessons, directing study, and managing the classroom.

A grade of B is required to meet degree requirements.

AGED 4871 - Residency I

Credit 5.

Corequisite: AGED 4872. Performance based clinical experience in authentic settings involving planning appropriate instruction based on student's needs, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice.

A grade of B is required to meet degree requirements.

AGED 4872 - Professional Seminar I

Credit 5.

Corequisite: AGED 4871. Seminar for Residency I candidates to develop curriculum, identify effective instructional strategies, and implement appropriate assessment methods to support and meet the needs of all learners.

AGED 4880 - Student Teaching in Agricultural Education II

Credit 5.

Corequisite: AGED 4870, AGED 4890. Non-instructional aspects of teaching, such as personal-professional characteristics, human relations skills, and educational philosophy.

A grade of B is required to meet degree requirements.

AGED 4881 - Residency II

Credit 10.

Prerequisite: AGED 4871 with a grade of B. Corequisite: AGED 4882. Performance based full time clinical experience in authentic settings involving planning appropriate instruction based on student's needs, demonstrating effective instructional strategies, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice.

A grade of B is required to meet degree requirements.

AGED 4882 - Professional Seminar II

Credit 2.

Corequisite: AGED 4881. Seminar for Residency II candidates supporting professional development in areas of planning, assessment, instruction, classroom management, communication and reflection.

AGED 4890 - Seminar: Education and Society

Credit 2.

Corequisite: AGED 4870, AGED 4880. Seminar on issues related to the interrelationships among school, culture and society; a historical, philosophical, and sociological analysis.

AGED 4940 (5940) - Agricultural Education Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural education under the supervision of a member of the School of Agriculture faculty.

AGED 4950 (5950) - Agricultural Education Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural education under the supervision of a member of the School of Agriculture faculty.

AGED 4960 - Agricultural Education Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural education under the supervision of a member of the School of Agriculture faculty.

AGED 4970 - Agricultural Education Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural education under the supervision of a member of the School of Agriculture faculty.

AGED 4980 - Agricultural Education Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural education under the supervision of a member of the School of Agriculture faculty.

Agricultural Engineering Technology

AGET 1500 - Practical Applications in Agricultural Systems

Lec. 2. Credit 2.

Using dimensional analysis (aka factor analysis) to convert between units and solve problems in crop landscape, livestock, and food systems. Quantitative

problem solving to be successful, accurate, efficient, and safe in agricultural and food enterprises.

AGET 2110 - Agricultural Engineering Technology

Fall. (E). Lec. 2. Credit 2.

Corequisite: AGET 2115. Application of engineering principles to agriculture through a selection of independent but related topics while also advancing the student's problem-solving skills.

(O) and (E) Denote Odd and Even Years Respectively

AGET 2115 - Agricultural Engineering Technology Laboratory

Fall. Lab. 2. Credit 1.

Corequisite: AGET 2110. Application of engineering principles to agriculture through a selection of independent but related topics.

AGET 3110 - Natural Resource Systems

Spring. Lec. 2. Credit 2.

Corequisite: AGET 3115. Application of engineering principles to surveying, soil and water conservation, and animal waste management.

AGET 3115 - Natural Resource Systems Laboratory

Spring. Lab. 2. Credit 1.

Corequisite: AGET 3110. Application of engineering principles to surveying, soil and water conservation, and animal waste management.

AGET 3320 - Small Power Equipment

Spring. (O). Lec. 2. Credit 2.

Corequisite: AGET 3325. Principles of operation, adjustment and maintenance of small internal combustion engines and associated equipment.

(O) and (E) Denote Odd and Even Years Respectively

AGET 3325 - Small Power Equipment Laboratory

Spring (O). Lab. 2. Credit 1.

Corequisite: AGET 3320. Maintenance, service and overhaul of small internal combustion engines and associated equipment.

(O) and (E) Denote Odd and Even Years Respectively

AGET 3510 - Agricultural Surveying

Lec. 2. Lab. 3. Credit 3.

Elementary surveying including use of the steel tape,

level and transit with practice in traversing, and leveling and area computations.

AGET 3520 - Agricultural Spatial Technologies I

Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 2300. Principles and applications of geospatial technologies supporting precision agriculture/farming and planning for natural resource data management. Global positioning system (GPS), geographic information system (GIS), remote sensing (RS), yield monitoring and mapping, Internet information access, and computer software for management decisions.

AGET 3540 - Fundamentals of GIS and GPS in Agriculture and Natural Resources

Lec. 2. Lab. 2. Credit 3.

This introductory course will teach fundamentals of the Global Positioning System (GPS) and Geographic Information System (GIS) concepts, equipment, and software used in agricultural, environmental, and natural resource applications.

AGET 3560 - Turf Systems Irrigation Design

Summer and Fall (E). Lec. 2. Credit 2.

Corequisite: AGET 3565. Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.

(O) and (E) Denote Odd and Even Years Respectively

AGET 3565 - Turf Systems Irrigation Design Laboratory

Summer and Fall (E). Lab. 2. Credit 1.

Corequisite: AGET 3560. Residential, commercial, and athletic irrigation system assembly, installation, maintenance, and troubleshooting.

(O) and (E) Denote Odd and Even Years Respectively

AGET 3620 - Computer-Aided Design in Agriculture

Summer and Fall. (O). Lec. 1. Lab. 4. Credit 3.

Prerequisite: AGET 2110 or consent of instructor. The principles of computer-aided drafting and design with emphasis on agricultural operations.

AGET 4220 (5220) - Agricultural Machinery and Tractors

Spring. (E). Lec. 2. Credit 2.

Corequisite: AGET 4225. Principles of operation, selection, and economic utilization of agricultural power units and equipment.

(O) and (E) Denote Odd and Even Years Respectively

AGET 4225 - Agricultural Machinery and Tractors Laboratory

Spring. (E). Lab. 2. Credit 1.

Corequisite: AGET 4220 (5220). Application of agricultural power units and equipment operation principles.

(O) and (E) Denote Odd and Even Years Respectively

AGET 4510 (5510) - Agricultural Remote Sensing

Lec. 2. Lab. 2. Credit 3.

This course will teach the fundamentals of remote sensing concepts and software used in agricultural, environmental, and natural resource applications.

AGET 4520 (5520) - Agricultural Spatial Technologies II

Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGET 3520. Principles and applications of geospatial technologies supporting precision agriculture/farming and planning for natural resource data management. Global positioning system (GPS), geographic information system (GIS), remote sensing (RS), yield monitoring and mapping, Internet information access, and computer software for management decisions.

AGET 4610 (5610) - Greenhouse Structures and Landscaping Equipment

Fall. Lec. 3. Credit 3.

Selection, design, construction and operation of greenhouse structures and related nursery and landscaping equipment.

AGET 4620 (5620) - Agricultural Structures

Spring. (E). Lec. 3. Credit 3.

Planning; drawing; materials; principles of construction with respect to arrangement, location, and environmental control; and plan reading.

(O) and (E) Denote Odd and Even Years Respectively

AGET 4720 (5720) - Agricultural Processing

Spring. (O). Lec. 3. Credit 3.

Managing value-added agricultural products through the

application of engineering principles to fluid flow, electrical controls, refrigeration, heat transfer, drying and hydraulic systems.

(O) and (E) Denote Odd and Even Years Respectively

AGET 4850 - Engineering Technology Design for Agriculture

Lec. 1. Lab. 4. Credit 3.

Prerequisite: Senior standing or consent of instructor.

The primary purpose of this course is to provide an educational experience through an agricultural engineering technology project. The course emphasizes teamwork, communication, safety, and analysis for completion of a project. You will gain experience by developing a solution to a "real world" problem. To ensure a real-world problem, problems are solicited from agricultural, engineering, and other client groups. Instructors and other faculty will provide guidance and evaluation of your design solutions.

AGET 4940 (5940) - Agricultural Engineering Technology Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural engineering technology under the supervision of a member of the School of Agriculture faculty.

AGET 4950 (5950) - Agricultural Engineering Technology Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural engineering technology under the supervision of a member of the School of Agriculture faculty.

AGET 4960 - Agricultural Engineering Technology Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural engineering technology under the supervision of a member of the School of Agriculture faculty.

AGET 4970 - Agricultural Engineering Technology Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural engineering technology under the supervision of a member of the School of Agriculture faculty.

AGET 4980 - Agricultural Engineering Technology Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agricultural engineering technology under the supervision of a member of the School of Agriculture faculty.

Horticulture

AGHT 3030 - Integrated Pest Management

Spring. (O). Lec. 2. Lab. 2. Credit 3.

Prerequisite: BIOL 1123. Introduction to the aspects of integrated pest management. Identification of plant disease and insect pest problems. Fundamentals of control: biological, cultural and chemical. Plant disease concepts including etiology, ecology and physiology.

(O) and (E) Denote Odd and Even Years Respectively

AGHT 3250 - Arborist Services

Lec. 1. Lab 4. Credit 3.

Basic training and experience in professional tree care and aerial tree work. Climbing equipment provided, students provide personal protective equipment after instruction.

AGHT 3400 - Landscape Horticulture

Fall. Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 1100, AGRN 1110 or consent of instructor. Basic theory and principles of design for landscaping modern homes and businesses. Use of ornamental plants and special features. Installation, maintenance, and discussion of the effect of management on plant growth and health. Topics include pruning, fertilizer application, pest control, etc.

AGHT 3410 - Plant Propagation

Fall. Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 1100, AGRN 1110, BIOL 1123, or consent of instructor. Asexual and sexual propagation of plants by cuttings, layers, division, special structures, grafting, budding, seeds and tissue culture.

AGHT 3440 - Floral Arrangement

Fall. Lec. 1. Lab. 4. Credit 3.

Fundamentals and theory of floral design with emphasis on arrangements for the home and special occasions.

AGHT 3450 - Dendrology

Fall. Lec. 2. Lab. 3. Credit 3.

Prerequisite: BIOL 2310 or consent of instructor. The study of trees and the identification of native and urban species commonly found in the mid-South. Adaptability of the species to various ecological conditions of forest ecosystems and landscape environments will be discussed.

AGHT 3460 - Interior Landscaping

Spring. (E). Lec. 2. Lab. 2. Credit 3.

Identification, culture, production, and use of foliage plants in interior design; principles of design; and practices of maintenance.

(O) and (E) Denote Odd and Even Years Respectively

AGHT 3470 - Landscape Plant Materials

Spring. (E). Lec. 2. Lab. 3. Credit 3.

Uses and the identification of tree, shrub, and herbaceous plant species for landscapes. Ornamental characteristics and the adaptability of the species to various landscape conditions will be discussed.

(O) and (E) Denote Odd and Even Years Respectively

AGHT 3480 - Horticultural Therapy

Cross-listing: SPED 3480

Spring. (O). Lec. 2. Lab. 2. Credit 3.

Introduction to the application of horticulture for special education and as therapy for treatment, rehabilitation, and/or training of individuals with disabilities.

(O) and (E) Denote Odd and Even Years Respectively

AGHT 4410 - Nursery Management

Spring. (O). Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGHT 3410. Principles of retail and wholesale nursery site selection, field and container production, and resource management. Students who have not had prerequisite can request permission from the instructor.

(O) and (E) Denote Odd and Even Years Respectively

AGHT 4420 - Greenhouse Management and Crop Production

Spring. (E). Lec. 2. Lab. 3. Credit 3.

Prerequisite: AGHT 3410, AGET 4610 (5610), or request by advisor. Principles of greenhouse management and environmental controls; production, timing, harvesting, and marketing of commercial floricultural crops; pest control strategies; and nutrient film technique.

Development of commercial production schedule required.

(O) and (E) Denote Odd and Even Years Respectively

AGHT 4940 (5940) - Horticulture Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of horticulture under the supervision of a member of the School of Agriculture faculty.

AGHT 4950 (5950) - Horticulture Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of horticulture under the supervision of a member of the School of Agriculture faculty.

AGHT 4960 - Horticulture Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of horticulture under the supervision of a member of the School of Agriculture faculty.

AGHT 4970 - Horticulture Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of horticulture under the supervision of a member of the School of Agriculture faculty.

AGHT 4980 - Horticulture Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of horticulture under the supervision of a member of the School of Agriculture faculty.

AGRN 3400 - Crop Pests and Diseases

Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 1100. Introduction to common insect pests and diseases of agricultural crops.

Agriculture

AGBE 3430 - Introduction to Agribusiness Management

Lec. 3. Credit 3.

Prerequisite: AGBE 2100. An introduction to the application of management principles and processes to agricultural business firms. Planning and operating in domestic and international markets will be addressed.

AGR 1020 - Connections to Agriculture

Rec. 2. Credit 1.

An introduction for agricultural students to the social, educational, economic, and career opportunities, which are available on campus, in the local community, and the broader agricultural industry.

AGR 2890 - Meeting the Challenges of a Diverse Workplace

Lec. 3. Credit 3.

This course is designed as an upper division, work-world preparation course. As students ready to leave the relative safety of the cocooned worlds of their chosen disciplines, this course provides practical tools and information necessary to succeed in a diverse and changing world of work. By combining interactive learning, current and relevant readings, and key presenters the course will help completers integrate more smoothly into the next phase of their lives.

AGR 2910 - Work Experience

Credit Variable 1, 2, 3 per sem., Max. 9.*

Supervised on-campus work experience in agriculture. Credit awarded based on 3 hours of work per week during the semester for each hour of credit. Graded S/U only.

* No more than a total of 12 credits of Work Experience, Internship, and/or Co-op or any combination of these may apply toward the Bachelor of Science degree in Agriculture.

AGR 2920 - Work Experience

Credit Variable 1, 2, 3 per sem., Max. 9.*

Supervised on-campus work experience in agriculture. Credit awarded based on 3 hours of work per week during the semester for each hour of credit. Graded S/U only.

* No more than a total of 12 credits of Work Experience, Internship, and/or Co-op or any combination of these may apply toward the Bachelor of Science degree in Agriculture.

AGR 2940 - Internship

Credit Variable 1, 2, 3 per sem., Max. 9.*

Supervised off-campus work experience program in production agriculture, an agricultural agency of the government or an agribusiness. Credit awarded based on one-month full-time employment for each hour of credit or equivalent. Graded S/U only.

* No more than a total of 12 credits of Work Experience,

Internship, and/or Co-op or any combination of these may apply toward the Bachelor of Science degree in Agriculture.

AGR 2950 - Internship

Credit Variable 1, 2, 3 per sem., Max. 9.*

Supervised off-campus work experience program in production agriculture, an agricultural agency of the government or an agribusiness. Credit awarded based on one-month full-time employment for each hour of credit or equivalent. Graded S/U only.

* No more than a total of 12 credits of Work Experience, Internship, and/or Co-op or any combination of these may apply toward the Bachelor of Science degree in Agriculture.

AGR 2990 - Experiential Agriculture

Lab. 6. Credit 3.

Hands-on learning experience in a variety of agricultural production activities. Experiences may include but are not limited to livestock handling, crop production, landscaping, construction of agricultural structures and data collection, and analysis.

AGR 3900 - Leadership Development for AG/HEC Ambassadors

Cross-listing: AGHE 3900

Lec. 1. Credit 1.

Prerequisite: Consent of instructor. Course designed to improve leadership skills of AG/HEC Ambassadors.

AGR 3901 - Leadership Development for AG/HEC Ambassadors

Cross-listing: AGHE 3901

Lec. 1. Credit 1.

Prerequisite: Consent of instructor. Course designed to improve leadership skills of AG/HEC Ambassadors.

AGR 3902 - Leadership Development for AG/HEC Ambassadors

Cross-listing: AGHE 3902

Lec. 1. Credit 1.

Prerequisite: Consent of instructor. Course designed to improve leadership skills of AG/HEC Ambassadors.

AGR 3903 - Leadership Development for AG/HEC Ambassadors

Cross-listing: AGHE 3903

Lec. 1. Credit 1.

Prerequisite: Consent of instructor. Course designed to improve leadership skills of AG/HEC Ambassadors.

AGR 3940 - Advanced Internship

(Fall, Spring, Summer) Credit 3.

Prerequisite: Junior or Senior standing and recommendation of advisor; must conform to departmental guidelines. Supervised off-campus advanced placement program in production agriculture, an agricultural agency of the government or an agribusiness. A minimum of six weeks of full-time work is required to fulfill three credit hours.

* No more than a total of 12 credits of Work Experience, Internship, and/or Co-op or any combination of these may apply toward the Bachelor of Science degree in Agriculture.

AGR 3950 - Advanced Internship

(Fall, Spring, Summer) Credit 3.

Prerequisite: Junior or Senior standing and recommendation of advisor; must conform to departmental guidelines. Supervised off-campus advanced placement program in production agriculture, an agricultural agency of the government or an agribusiness. A minimum of six weeks of full-time work is required to fulfill three credit hours.

* No more than a total of 12 credits of Work Experience, Internship, and/or Co-op or any combination of these may apply toward the Bachelor of Science degree in Agriculture.

AGR 3960 - Advanced Internship

(Fall, Spring, Summer) Credit 3.

Prerequisite: Junior or Senior standing and recommendation of advisor; must conform to departmental guidelines. Supervised off-campus advanced placement program in production agriculture, an agricultural agency of the government or an agribusiness. A minimum of six weeks of full-time work is required to fulfill three credit hours.

* No more than a total of 12 credits of Work Experience, Internship, and/or Co-op or any combination of these may apply toward the Bachelor of Science degree in Agriculture.

AGR 4920 - Senior Problem

Credit 3.

Prerequisite: Senior standing. Supervised research in area of interest to the student including data collection, analysis, interpretation of results and preparation of written report.

Agritourism

ATOU 2100 - Agritourism Development and Promotion

Lec. 3. Credit 3.

Agritourism has a direct economic impact on farms and surrounding communities. This course will delve into the tourism industry, strategies to develop and maintain farms and their heritage as tourism products, as well as explore strategies to document and promote the economics and cultural significance of agritourism. Open to both majors and non-majors.

ATOU 3020 - Agriculture and Heritage Based Tourism

Lec. 3. Credit 3.

In order to understand the connection between agricultural traditions and heritage-based tourism, one must understand the importance of resource strategies critical to the preservation and conservation of unique environmental and historical settings. This course will review the historical image of agriculturists and their connection to the land and how this connection ties to heritage-based tourism. The course will delve into a variety of topics and methods to increase the importance of this new role awareness.

ATOU 4100 - Direct Marketing for Agriculture and Human Ecology

Lec. 3. Credit 3.

Direct marketing shortens the marketing route and allows businesses to communicate with and deliver products directly to the consumer. This course will cover key elements of direct marketing in an agriculture and human ecology context, including retailing, merchandising, social media marketing and services marketing. Open to both majors and non-majors.

ATOU 4200 - Sustainable Tourism as Economic and Community Development

Lec. 3. Credit 3.

Prerequisite: ATOU 2100 or consent of instructor. Sustainable tourism is a strategy for economic and community development in rural areas around the world. This course will trace the inception of these concepts from the United Nations World Tourism Organization and follow their application in various locations, both internationally and within the US. Focus will be given to various types of niche tourism to achieve economic and community development goals.

Agronomy

AGRN 1100 - Plant Science

Fall, Spring. Lec. 3. Credit 3.

Introduction to the fundamentals of plant science as related to the ecological principles of agronomic and horticultural crops.

AGRN 1110 - Plant Science Laboratory

Lab. 2. Credit 1.

Corequisite: AGRN 1100 unless credit for AGRN 1100 has previously been earned.

AGRN 2000 - Soil and the Environment

Lec. 2. Lab. 2. Credit 3.

An introduction to soil physical and biological properties and their relationship to plant growth, land use, and environmental quality.

AGRN 2240 - Introduction to Soil Evaluation

Fall. Lab. 2. Credit 1.

For students interested in becoming members of the intercollegiate soil judging team.

AGRN 2300 - Soils

Lec. 2. Lab. 2. Credit 3.

An introduction to soil physical and biological properties and their relationship to plant growth, land use and environmental quality.

AGRN 2310 - Soil Chemical Properties

Lec. 1. Credit 1.

Prerequisite: CHEM 1020, CHEM 1120, or consent of instructor. Corequisite: AGRN 2300. An introduction to soil chemical properties and their relationship to plant growth, land use and environmental quality.

AGRN 3000 - Soils

Lec. 3. Lab. 2. Credit 4.

Prerequisite: CHEM 1020 or CHEM 1120 or consent of instructor. An introduction to soil physical and biological properties and their relationship to plant growth, land use, and environmental quality.

AGRN 3010 - Pesticide Safety/Certification

Lec. 2. Credit 1.

Students receive training in the proper use of pesticides to protect public health and the environment. Students have the opportunity to be tested for the TN Private Pesticide Applicator Certification will be administered for an additional fee. 8-week course.

AGRN 3020 - Crops in Sustainable Systems

Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 1100 and AGRN 1110. Botany and classification, importance, cultural practices (including tillage systems), pest control, crop improvement, harvesting, and uses of the principal crops of Tennessee and the United States. Agroecosystem concepts will be emphasized.

AGRN 3100 - Turfgrass Management

Fall. (E). Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 1100 and AGRN 1110 or consent of instructor. Establishment and management of special purpose grasses for lawns, golf courses, parks, playgrounds, athletic fields and roadsides.

(O) and (E) Denote Odd and Even Years Respectively

AGRN 3230 - Environmental Soil Science

Spring. Lec. 3. Lab. 2. Credit 4.

Prerequisite: AGRN 2300, AGRN 2310. Soil and water conservation as related to land use, land use planning, and impact of agriculture on the environment.

AGRN 3300 - Organic Farming

Lec. 2. Lab. 2. Credit 3.

An examination of organic crop production methods including improving the structure of soil and fertility, pest management, irrigation, season extension, vegetable and fruit crop production, harvesting, postharvest handling and marketing techniques.

AGRN 3350 - Soil and Water Conservation

Lec. 3. Credit 3.

Prerequisite: AGRN 2300 and AGRN 2310 or consent of instructor. Examination of soil health and water quality as impacted by natural and human influences. Emphasis on soil productivity conservation.

AGRN 3610 - Food Safety in Agritourism - Planning Cross-listing: (HEC)

Lec. 2. Lab 1. Credit 3.

Introductory course in food safety as applied to the planning, production, and processing of cool season crops using experiential learning techniques. Food and farm safety regulations as related to the Agritourism industry. Students earn pesticide handler certification.

AGRN 3620 - Food Safety in Agritourism - Growing and Harvesting Cross-listing: (HEC)

Lec. 2. Lab 1. Credit 3.

Prerequisite: AGRN 3610. Further application of food

and farm principles and regulations with emphasis on planning, production, and processing of warm season crops. Students participate in dissemination of raw and processed products in various Agritourism settings.

AGRN 3630 - Food Safety in Agritourism - Postharvest

Cross-listing: (HEC)

Lec. 2. Lab. 1. Credit 3.

Prerequisite: AGRN 3620. Emphasis on postharvest handling and storage of crops. Safe processing of agricultural products using traditional techniques. Students will demonstrate processing techniques in a variety of Agritourism settings.

AGRN 4100 (5100) - Weed Science

Fall. (O). Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 1100 and AGRN 1110 or consent of instructor. Plant and seed identification, and growth habits and dissemination of weeds. Biological, cultural, and chemical methods of control in the integrated pest management (IPM) concept.

(O) and (E) Denote Odd and Even Years Respectively

AGRN 4120 (5120) - Crop Improvement

Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 1100 and AGRN 1110 or consent of instructor. Objectives, genetic principles, and methods of crop improvement by conventional and genetic engineering methods.

AGRN 4130 (5110) - Forage Crops Production and Management

Spring. Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 1100, AGRN 1110 and AGRN 2300, AGRN 2310. Botany and classification, soil and climatic requirements, species adaptation, establishment and management of grasses and legumes for silage, hay, and temporary, permanent, and rotational pastures for ruminants, swine, and horses.

AGRN 4210 (5210) - Soil Fertility and Fertilizers

Spring. (E). Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 2300, AGRN 2310 or consent of instructor. Properties of soils in relation to plant nutrition, and fertilizer materials and their relationship to soil fertility.

(O) and (E) Denote Odd and Even Years Respectively

AGRN 4220 (5220) - Environmental Soil Chemistry

Lec. 3. Credit 3.

Prerequisite: AGRN 2300, AGRN 2310 or consent of instructor. Study of chemical composition of natural and anthropogenic material in soil and their reactions and movement in the soil environment.

AGRN 4230 (5230) - Soil Classification

Fall. Lec. 2. Lab. 2. Credit 3.

Prerequisite: AGRN 2300, AGRN 2310 or consent of instructor. Soil formation, morphology, and classification, and methods of soil survey and detailed mapping of an assigned area.

AGRN 4240 - Advanced Soil Evaluation

Spring. Lab. 2. Credit 1.

Prerequisite: AGRN 2240. For members of the intercollegiate soil judging team.

AGRN 4940 (5940) - Agronomy Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agronomy under the supervision of a member of the School of Agriculture faculty.

AGRN 4945 - Soil Science Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of soil science under the supervision of a member of the School of Agriculture faculty.

AGRN 4950 (5950) - Agronomy Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agronomy under the supervision of a member of the School of Agriculture faculty.

AGRN 4955 - Soil Science Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of soil science under the supervision of a member of the School of Agriculture faculty.

AGRN 4960 - Agronomy Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agronomy under the supervision of a member of the School of Agriculture faculty.

AGRN 4965 (5960) - Soil Science Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of soil science under the supervision of a member of the School of Agriculture faculty.

AGRN 4970 - Agronomy Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agronomy under the supervision of a member of the School of Agriculture faculty.

AGRN 4975 - Soil Science Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of soil science under the supervision of a member of the School of Agriculture faculty.

AGRN 4980 - Agronomy Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of agronomy under the supervision of a member of the School of Agriculture faculty.

AGRN 4985 - Soil Science Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of soil science under the supervision of a member of the School of Agriculture faculty.

Animal Science

ANS 1200 - Introductory Animal Science

Fall, Spring. Lec. 3. Credit 3.

Introduction to market classes, types, grades, and breeds of livestock and poultry; animal agricultural products; basic animal biological processes as related to livestock production and management; and overview of careers related to animal agriculture.

ANS 1210 - Introductory Animal Science Laboratory

Lab. 3. Credit 1.

Corequisite: ANS 1200 unless credit for ANS 1200 has previously been earned. Provides the opportunity for application of the basic principles of animal science with an emphasis on different types of livestock enterprises; animal types, breeds, form, and function; and common practices employed in management of major livestock enterprises.

ANS 2020 - Livestock Management

Spring. Lec. 1. Lab. 4. Credit 3.

Prerequisite: ANS 1200 and ANS 1210. Management techniques, practices and principles involved in meat animal production.

ANS 2110 - Livestock Evaluation

Fall. Lec. 1. Lab. 4. Credit 3.

Prerequisite: ANS 1200 and ANS 1210. Techniques for determining live animal composition. Effects of weight, muscling, and condition on carcass-based live animal value. Carcass quality and yield evaluation methods. Determining merit in breeding stock and introductory livestock judging.

ANS 2250 - Animals and Society

Lec. 3. Credit 3.

Impacts of animals, and particularly companion animals, on human society, development, health and behavior.

ANS 3010 - Animal Nutrition

Fall. Lec. 2. Lab. 2. Credit 3.

Prerequisite: ANS 1200, ANS 1210, and CHEM 1020 or CHEM 1120. Classes of nutrients, digestibility, metabolism, nutrient requirements of livestock, and feed analysis.

ANS 3020 - Feeds and Feeding

Spring. Lec. 2. Lab. 2. Credit 3.

Feed classification, nutrient requirements, ration formulation for various classes of livestock and dairy, and conducting feeding trials.

ANS 3110 - Livestock Judging

Spring. (O). Lec. 1. Lab. 4. Credit 3.

Prerequisite: ANS 2110. Designed to train the student to become a competent judge of market and breeding classes of beef cattle, sheep, and swine.

(O) and (E) Denote Odd and Even Years Respectively

ANS 3130 - Animal Breeding

Fall. Lec. 2. Lab. 2. Credit 3.

Genetics applied to the selection and improvement of livestock, heritability estimates, and selection indexes as applied to animal breeding.

ANS 3140 - Reproduction in Farm Animals

Spring. Lec. 2. Lab. 2. Credit 3.

Reproduction in farm animals; anatomy, physiology, and

endocrine control on reproduction; and applied reproduction methods in livestock and dairy animals.

ANS 3150 - Common Diseases and Parasites of Domestic Animals

Spring. Lec. 3. Credit 3.
Prevention, diagnosis, and treatment of common diseases and parasites affecting farm animals.

ANS 3310 - Meat, Dairy and Poultry Products

Lec. 2. Lab. 2. Credit 3.
Food science applied principles regarding meat, dairy and poultry products. Emphasis on food safety, quality and marketing issues.

ANS 3330 - Anatomy and Physiology of Livestock Animals

Lec. 3. Credit 3.
Overview of anatomical structures and physiological processes in biological systems. Specific emphasis will be given to livestock species including bovine, porcine, ovine and caprine species. Introductory cellular biology, tissue types, and specific organ systems stressing cases where livestock species may differ from other species.

ANS 4110 - Beef Production and Management

Fall. (O). Lec. 2. Lab. 2. Credit 3.
Prerequisite: ANS 3010 or ANS 3020 or consent of instructor. Application of modern technology in breeding, feeding, financing, management and marketing of beef cattle.

(O) and (E) Denote Odd and Even Years Respectively

ANS 4120 - Swine Production and Management

Fall. (E). Lec. 2. Lab. 2. Credit 3.
Prerequisite: ANS 3010 or ANS 3020 or consent of instructor. Application of modern technology in breeding, feeding, financing, management and marketing of swine.

(O) and (E) Denote Odd and Even Years Respectively

ANS 4130 - Sheep Production and Management

Spring. (O). Lec. 2. Lab. 2. Credit 3.
Prerequisite: ANS 3010 or ANS 3020 or consent of instructor. Breeds, feeding, management, marketing of sheep for lamb and wool production, and parasite and disease control.

(O) and (E) Denote Odd and Even Years Respectively

ANS 4140 - Commercial Poultry Production and Management

Lec. 3. Credit 3.
Prerequisite: ANS 1200 and ANS 1210. To learn some of the basic sciences (nutritional needs, reproductive processes, genetic selection, and diseases) as they relate to poultry production.

ANS 4150 - Equine Management

Fall. (O). Lec. 2. Lab. 2. Credit 3.
Overview of the equine industry, breeds, selection, handling and grooming, foot care, diseases, nutrition, reproduction, facilities, and management techniques.

(O) and (E) Denote Odd and Even Years Respectively

ANS 4200 - Poultry Production and Management

Lec. 2. Lab. 2. Credit 3.
Prerequisite: ANS 1200 and ANS 1210. This course will provide the students to gain hands-on experience in poultry meat and egg production. The additional lab component would give the students enough time to visit nearby poultry farms to learn various legs of commercial poultry industry.

ANS 4250 - Companion Animal Management

Lec. 2. Lab. 1. Credit 3.
Prerequisite: Junior standing. Care, management and uses of companion animals, particularly involving human health and well-being, and behavior modification in elementary school students.

ANS 4310 - Dairy Herd Management and Supervision

Spring. (E). Lec. 2. Lab. 2. Credit 3.
Selection, feeding, management, supervision methods, DHIA record keeping, disease control, equipment selection and quality control methods in dairy production.

(O) and (E) Denote Odd and Even Years Respectively

ANS 4940 (5940) - Animal Science Topics

Credit 1-4.
Prerequisite: Consent of instructor. Special study in an approved area of animal science under the supervision of a member of the School of Agriculture faculty.

ANS 4950 (5950) - Animal Science Topics

Credit 1-4.
Prerequisite: Consent of instructor. Special study in an

approved area of animal science under the supervision of a member of the School of Agriculture faculty.

ANS 4960 - Animal Science Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of animal science under the supervision of a member of the School of Agriculture faculty.

ANS 4970 - Animal Science Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of animal science under the supervision of a member of the School of Agriculture faculty.

ANS 4980 - Animal Science Topics

Credit 1-4.

Prerequisite: Consent of instructor. Special study in an approved area of animal science under the supervision of a member of the School of Agriculture faculty.

Anthropology

ANTH 1100 - Introduction to Anthropology

Lec. 3. Credit 3.

Overview of the physical and cultural development of human beings from prehistoric times to the present.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences).

ANTH 2002 - Non-Western Cultures

Lec. 3. Credit 3.

An introduction to the study of non-Western cultures and societies through their ideologies, language systems, ecologies, family structures, social stratification, religions and economic structures. A comparative approach will be emphasized.

ANTH 2100 - Cultural Ecology

Cross-listing: SOC 2100

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Interaction between human cultural systems and the physical environment in prehistoric through modern times.

ANTH 4040 (5040) - Law and Culture

Cross-listing: SOC 4040 (5040), CJ 4040 (5040)

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. A comparative cross-cultural analysis of

primitive, traditional, and modern attitudes toward law, social control, punishment, and individual responsibility.

ANTH 4910 (5910) - Independent Study

Credit 1-3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of anthropology where there is no appropriate course. May be taken twice, provided that the topic is different.

ANTH 4960 (5960) - Special Topics

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue or interest area in anthropology.

Art Education

ARED 1250 - Digital Technologies in Art Education

Studio 6. Credit 3.

Introduction to photographic techniques, image capture, formatting and manipulating still imagery in digital media for art and design work.

ARED 2020 - Art Education Theory

Lec. 1. Lab. 1. Credit 2.

Includes the theoretical, historical, philosophical, and sociological underpinnings of the field of Art Education. Intensive study of the historical and chronological development of Art Education will be featured. Significant trends and movements which have defined Art Education over the last century will be presented. ARED 2020 is also designed to apply the theories learned through presenting the unique interpretations, insights, creative processes, and artistic practices of select contemporary artists and art educators. The course emphasizes the visual, conceptual, and practical applications of contemporary art practices in today's K-12 schools. The course provides engaging activities and projects that aim to provoke, inspire, and stimulate pre-service art education students to become innovators in their future art classrooms.

ARED 2050 - STEAM Studio

Studio 4. Credit 2.

Prerequisite: ARED 2020. Exploration and defining STEAM through experiencing the intersections of art and science through historical connections, campus collaborations, and studio projects.

ARED 3155 - Elementary Practicum

Lab. 1. Credit 1.

Prerequisite: ARED 2020. Full admission to the Teacher Education program. Corequisite: ART 3205. This practicum is to prepare art education students for their Residency I and II requirements in the senior year. Students will be required to spend at least 20 hours in a public-school elementary art environment.

ARED 3165 - Secondary Practicum

Lab. 1. Credit 1.

Prerequisite: ARED 2020, ARED 3155, and ART 3205. Full admission to the Teacher Education program. This practicum is to prepare art education students for their Residency I and II requirements in the senior year. Students will be required to spend at least 20 hours in a public-school secondary art environment.

ARED 4870 - Student Teaching I

Credit 5.

Prerequisite: The prerequisite to all upper division education courses is full admission to the Teacher Education Program. Corequisite: ARED 4880 and ARED 4890. Activities directly related to teaching performance, planning and presenting lessons, directing study, and managing the classroom.

A grade of B is required to meet degree requirements.

ARED 4871 - Residency I

Credit 5.

Corequisite: ARED 4872. Performance based clinical experience in authentic settings involving planning appropriate instruction based on student's needs, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice.

A grade of B is required to meet degree requirements.

ARED 4872 - Professional Seminar I

Credit 5.

Corequisite: ARED 4871. Seminar for Residency I candidates to develop curriculum, identify effective instructional strategies, and implement appropriate assessment methods to support and meet the needs of all learners.

ARED 4880 - Student Teaching II

Credit 5.

Prerequisite: The prerequisite to all upper division education courses is full admission to the Teacher

Education Program. Corequisite: ARED 4870 and ARED 4890. Continuation of ARED 4870 in a different setting. A grade of B is required to meet degree requirements.

ARED 4881 - Residency II

Credit 10.

Prerequisite: ARED 4871 with a grade of B. Corequisite: ARED 4882. Performance-based full-time clinical experience in authentic settings involving planning appropriate instruction based on student's needs, demonstrating effective instructional strategies, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A grade of B is required to meet degree requirements.

ARED 4882 - Professional Seminar II

Credit 2.

Corequisite: ARED 4881. Seminar for Residency II candidates supporting professional development in areas of planning, assessment, instruction, classroom management, communication and reflection.

ARED 4890 - Seminar: Education and Society

Credit 2.

Prerequisite: The prerequisite to all upper division education courses is full admission to the Teacher Education Program. Corequisite: ARED 4870 and ARED 4880. Seminar on the interrelationships among school, culture and society; a historical, philosophical and sociological analysis.

Art

ART 1035 - Introduction to Art

Credit 3.

Introduction to the understanding and appreciation of art. Emphasis on language of art, its application, and experiencing various art forms.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

ART 1045 - Drawing I

Studio 6. Credit 3.

Introduction to techniques and media of drawing, including two-dimensional and illusionistic skills.

(ARTP 1010, TTP Course)

ART 1050 - Drawing II

Studio 6. Credit 3.

Prerequisite: ART 1045 or consent of instructor.
Refinements of basic techniques with emphasis on individual development.

(ARTP 1020, TTP Course)

ART 1250 - Introduction to Digital Imaging

Studio 6. Credit 3.

Introduction to photographic techniques, image capture, formatting and manipulating still imagery in digital media for art and design work.

ART 1340 - Foundations Studio I

Studio 6. Credit 3.

Introduction to the elements and principles of design in two-dimensions through studio projects, lectures, demonstrations and discussion.

(ARTP 1110, TTP Course)

ART 1350 - Foundations Studio II

Studio 6. Credit 3.

Introduction to the elements and principles of design in three-dimensions through studio projects, lectures, demonstrations and discussion.

(ARTP 1120, TTP Course)

ART 2000 - Art History Survey I

Lec. 3. Credit 3.

Survey of painting, sculpture, and architecture from prehistoric through medieval.

(ARTH 2010, TTP Course)

ART 2020 - Art History Survey II

Lec. 3. Credit 3.

Survey of painting, sculpture and architecture from Renaissance through the nineteenth century.

(ARTH 2020, TTP Course)

ART 2040 - Printmaking: Relief

Studio 4. Credit 2.

Prerequisite: ART 1045 and ART 1340 or consent of instructor. Introduction to relief printmaking techniques with concentrated work in the processes of wood cut and linoleum cut.

ART 2080 - Special Problems in Printmaking

Studio 2. Credit 1.

Prerequisite: ART 1045 or consent of instructor.
Corequisite: ART 2040. Required for BFA majors with concentrations in Painting. Special studies in printmaking, which emphasize skills and artistic development of the professional artist.

ART 2090 - Special Problems in Photography

Studio 2. Credit 1.

Corequisite: ARED 2050. Required for BFA majors with Painting concentrations. Special studies in photography, which emphasize skills and artistic development for the professional artist.

ART 2210 - Introduction to Design

Studio 6. Credit 3.

Prerequisite: ARED 1250 or consent of instructor. An introduction to the principles and requirements of digital artwork for reproduction. Basic processes and standard software for digital design in raster and vector image files, and page layout processes are covered.

ART 2220 - Typography, Text and Image

Studio 6. Credit 3.

Prerequisite: ARED 1250 or consent of instructor. Introduction to type and the history of letterforms. Design with letterforms in blocks of text and page structure. Interaction of typography with content and the relation of typography to imagery.

ART 2330 - Technical Drawing

Studio 6. Credit 3.

This class will focus on graphic techniques that are used in solving design problems, visually communicating ideas, and documenting precise information by drawing both with instruments and freehand.

ART 2340 - Computer Aided Drafting for the Artist

Studio 6. Credit 3.

Using CAD software, students will learn processes for designing, modeling and rendering three-dimensional art objects.

ART 2410 - Painting I, Introduction

Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1045 or permission of the instructor. Introduction to techniques, media, pictorial devices and color theory.

ART 2510 - Introduction to Clay

Studio 6. Credit 3.

Introduction to hand-built and wheel-thrown clay vessels and sculpture, including historical and contemporary overview.

ART 2610 - Introduction to Fibers

Studio 6. Credit 3.

Introduction to the basics of surface design (dyeing and patterning fabric) and weaving cloth on a floor loom. Emphasis on developing the understanding of safe and successful methods of weaving cloth and patterning fabric.

ART 2710 - Introduction to Glass

Studio 6. Credit 3.

Beginning glassblowing for both majors and non-majors. Vessels and paperweights made at the furnace and coldworking techniques such as stained glass, sandblasting, grinding and polishing. Modern use of glass and basics of the history of glass will also be covered.

ART 2810 - Introduction to Metals

Studio 6. Credit 3.

Introduction to the basics of metalworking. Emphasis on fabricated jewelry, design and creativity.

ART 2910 - Introduction to Woodworking

Studio 6. Credit 3.

Introduction to the basics of woodworking design and technology using hand and power tools.

ART 3099 - Professional Practices for the Artist

Lec. 3. Credit 3.

Prerequisite: ART 1340, ARED 1250, ART 1350, ART 1045, ART 1050 or ART 2330 and at least 6 credits of other art studio classes, or permission of the instructor. Students will research and learn to apply basic professional practices of the artist, including: business practices, marketing/promotion approaches, and identifying, applying for and utilizing resources available to artists. These skills will be used for advancing students' careers as emerging artists or preparing them for further study in the visual arts. This investigation will occur through reading and discussion, visiting presenters, writing, research projects/exercises, and development of individual portfolios.

ART 3130 - Art Since 1900

Lec. 3. Credit 3.

A survey of the major movements in western Art History from the late 19th century through the present. It is recommended but not required that students take ART 2120 before taking ART 3130.

ART 3150 - History of Crafts I

Lec. 3. Credit 3.

Survey of prehistoric through ancient crafts of the Mediterranean civilizations and the crafts of India, China, Japan, Africa, Native America and Islam.

ART 3160 - History of Crafts II

Lec. 3. Credit 3.

Survey of crafts from the Medieval Period through the present. It is recommended but not required that students take ART 3150 before taking ART 3160.

ART 3205 - Methods and Media

Lec. 2. Lab 1. Credit 3.

Prerequisite: ARED 2020. Full admission to the Teacher Education program. This course surveys and applies art educational curricula with classroom lectures, studio methodologies and application that are most significant and relevant for today's students and teachers at all grade levels.

ART 3210 - Design Studio

Studio 6. Credit 3.

Prerequisite: ART 2210 and ART 2220 or consent of instructor. Concept development and design problems in the development of still and moving images, as well as applying more extensive capabilities of raster, vector and page layout software.

ART 3220 - Design Studio II

Studio 6. Credit 3.

Prerequisite: ART 3210 or consent of instructor. Projects developing more advanced and complex production techniques, design problems and conceptual skills. Continuing development of advanced software skills.

ART 3230 - Design Studio III

Studio 6. Credit 3.

Prerequisite: ART 3220 or consent of instructor. Projects developing visual communication strategies, design coherence, technical mastery, and an understanding of production requirements. Explores ethical issues and

copyright and licensing requirements for publication in print and online formats.

ART 3240 - Illustration and Visual Narrative

Studio 6. Credit 3.

Prerequisite: ART 3210 or consent of instructor. An introduction to the concepts of digital illustration using vector graphic software. Development of narrative concepts and visual continuity.

ART 3250 - Independent Studies in Design

Studio 2-6. Credit 1-3.

Prerequisite: ART 3210 Design Studio I and ART 3220 Design Studio II. Consent of instructor. Directed projects in digital media arranged between the student and the instructor. May be repeated up to 9 credits.

ART 3251 - Independent Studies in Design

Credit 1-3.

Prerequisite: ART 3210 Design Studio I and ART 3220 Design Studio II. Consent of the instructor. Directed projects in design arranged between the student and instructor.

May be repeated up to 9 hours.

ART 3310 - Drawing III

Studio 6. Credit 3.

Prerequisite: ART 1050 or consent of instructor. Refinement of basic techniques with emphasis on individual development.

ART 3320 - Figure Studies

Studio 6. Credit 3.

Prerequisite: ART 1050 or consent of instructor. Specific concepts in drawing and/or painting the human form, including gesture and expression, spatial structure and proportion, and the effects of light and drapery on the human form.

ART 3410 - Painting II

Studio 6. Credit 3.

Prerequisite: ART 2410 or consent of instructor. Emphasis on problems in painting and use of materials in expressing the student's ideas.

ART 3420 - Painting III

Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050, ART 3410 or consent of instructor. A continuation of studio painting,

with emphasis on more advanced techniques, content, and the emergence of individual styles. May be repeated up to 6 credit hours.

ART 3421 - Painting IV

Studio 6. Credit 3.

Prerequisite: ART 3420 or consent of instructor. A continuation of studio painting with emphasis on more advanced techniques, content, and the emergence of individual styles. May be repeated up to 6 credit hours.

ART 3430 - Independent Studies in Painting I

Studio 6. Credit 3.

Prerequisite: ART 3421 or consent of instructor. Directed study in painting arranged between the instructor and the student. May be repeated up to 12 credit hours.

ART 3431 - Independent Studies in Painting II

Studio 6. Credit 3.

Prerequisite: ART 3430 or consent of instructor. Directed study in painting arranged between the instructor and the student.

ART 3510 - Clay on the Wheel

Fall. Studio 6. Credit 3.

Prerequisite: Permission of instructor. Exploration of wheel-throwing with emphasis on decorating and firing, including historical and contemporary overview. May be repeated up to 12 credit hours.

ART 3511 - Intermediate Hand-building

Spring. Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1045, ART 2510 or permission of instructor. Further exploration of hand-building with emphasis on decorating and firing. May be repeated up to 12 credit hours.

ART 3520 - Advanced Clay Studio

Fall. Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050 or ART 2330 and ART 3510 or ART 3511, or permission of instructor. Advanced ceramic form and process with emphasis on individual stylistic concept. Additional emphasis on ceramic history, aesthetics and criticism. May be repeated up to 12 credit hours.

ART 3521 - Advanced Clay Studio

Spring. Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050 or ART 2330 and ART 3510 or ART 3511 or permission of instructor.

Advanced ceramic form and process with emphasis on individual stylistic concept. May be repeated up to 12 credit hours.

ART 3530 - Independent Studies in Clay

Lab. 2, 4, 6. Credit 1, 2, 3.

Prerequisite: ART 2510 or equivalent and permission of instructor. Independent production studies by arrangement with the instructor, emphasis on advanced creative design and skills. May be repeated up to 12 credit hours.

ART 3531 - Independent Studies in Clay

Lab. 2, 4, 6. Credit 1, 2, 3.

Prerequisite: ART 2510 or equivalent and permission of instructor. Independent production studies by arrangement with the instructor, emphasis on advanced creative design and skills. May be repeated up to 12 credit hours.

ART 3610 - Weaving I

Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1045, ART 2610 or permission of instructor. Focus is on strengthening the student's technical knowledge and design capabilities of woven fiber structures, mainly for wearables and home furnishings. Explore various yarns to create interesting cloth. Learn several weave structures through samplers that include double weave cloth, lace waves, twill, and color and weave effects. May be repeated up to 12 credit hours.

ART 3611 - Weaving II

Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050 or ART 2330 and ART 3610 or permission of instructor. Explore more complex double weave structures and how to design interesting fabric with structure in mind. Explore new ways of thinking about cloth that includes weaving with more contemporary fiber. Emphasis is on transforming one's design concepts into woven work that is sound in structure, visually exciting, and contemporary in design. May be repeated up to 12 credit hours.

ART 3620 - Surface Design I

Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1045, ART 2610 or permission of instructor. Develop skills in a variety of surface application techniques using natural fabrics and Fiber Reactive dyes. Application methods include painting, block printing, dextrin resist, vinyl transfer, discharge and devore. Emphasis is placed on how to

use these surface techniques to create unique and visually dynamic designs. May be repeated up to 12 credit hours.

ART 3621 - Surface Design II

Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050 or ART 2330, and ART 3620 or permission of instructor. Screen-printing for repeat pattern on yardage and large-scale fabric work with emphasis on developing technical skill and a personal design aesthetic. Explore designs and design materials, learn methods for putting a design into repeat, and register print to produce an all-over multi-colored image on fabric. May be repeated up to 12 credit hours.

ART 3630 - Independent Studies in Fibers

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: Permission of the instructor. Individual fibers projects with emphasis on concept and design in weaving or surface design. May be repeated up to 12 credit hours.

ART 3631 - Independent Studies in Fibers

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: Permission of the instructor. Individual fibers projects with emphasis on concept and design in weaving or surface design. May be repeated up to 12 credit hours.

ART 3640 - 3D Structures in Fibers

Stu. 6. Credit 3.

Introduction to various approaches of constructing fiber materials into 3-D forms with emphasis on technical skill development.

ART 3641 - 3D Structures in Fibers II

Stu. 6. Credit 3.

Prerequisite: ART 2610 and ART 3640. Advanced level continuation of 3-D Structures in Fibers. Students will expand their experimentation of constructing fiber materials into 3D forms. Advanced level of technical abilities will be developed alongside demonstrated developmental of individual visual language in 3D forms.

ART 3650 - Fiber Art Studio I

Stu. 6. Credit 3.

Prerequisite: ART 2610, plus one of the following: ART 3640, or ART 3610 or ART 3620. Introduction to a broad range of traditional and experimental practices in fiber art. Emphasis on personal solutions to problems that demonstrates knowledge and understanding of

process. Focus on the creative exploration and inventive approach to the development of one's own visual language in fiber art.

ART 3651 - Fiber Art Studio II

Stu. 6. Credit 3.

Prerequisite: ART 2610 and ART 3650. Advanced level continuation of Fiber Art Studio I. Students will expand their experimentation and practices in fiber art. Emphasis on personal solutions to problems that demonstrates knowledge and understanding of process. Focus on the creative exploration and inventive approach to the development of one's own visual language in fiber art.

ART 3710 - Intermediate Glass Studio

Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1045, ART 2710 or permission of instructor. Intermediate glassblowing and coldworking, introduction to mold making, and exposure to a variety of professional artists' work. May be repeated up to 12 credit hours.

ART 3711 - Intermediate Glass Studio

Studio 6. Credit 3.

Prerequisite: ART 2710 or permission of instructor. Intermediate glassblowing and coldworking, introduction to mold making, and exposure to a variety of professional artists' work. May be repeated up to 12 credit hours.

ART 3720 - Advanced Glass Studio

Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050 or ART 2330 and ART 3710 and ART 3711 or permission of instructor. Advanced glassblowing and sandblasting, etching, slumping, and different types of glass forming. May be repeated up to 12 credit hours.

ART 3721 - Advanced Glass Studio

Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050 or ART 2330 and ART 3710 and ART 3711 or permission of instructor. Advanced glassblowing and sandblasting, etching, slumping, and different types of glass forming. May be repeated up to 12 credit hours.

ART 3730 - Independent Studies in Glass

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: Permission of the instructor. Individual studies in glass through specific projects arranged

between the instructor and the student. May be repeated up to 12 credit hours.

ART 3731 - Independent Studies in Glass

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: Permission of the instructor. Individual studies in glass through specific projects arranged between the instructor and the student. May be repeated up to 12 credit hours.

ART 3740 - Warm Glass Processes

Stu. 6. Credit 3.

Introduction to warm glass techniques, including but not limited to slumping, fusing, kiln casting as well as different types of molding making and creative problem solving.

ART 3750 - Production Processes in Glass

Stu. 6. Credit 3.

Prerequisite: ART 3710 or ART 3711. This class is designed to introduce students to a variety of hot glass methods used in multiple object production making. Both off hand and mold blowing will be covered. Entrepreneurial application, such as marketplace viability for production lines versus one of a kind work, pricing and promotion, will also be examined to ensure increased career readiness.

ART 3810 - Metals Studio—Metalsmithing

Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1350, ART 1045, ART 1050 or ART 2330 and ART 2810 or permission of instructor. The techniques and aesthetics of metalsmithing; emphasis on manipulation of sheet metal for jewelry and holloware with studies in casting, non-ferrous forging, chasing, raising and other techniques. May be repeated up to 12 credit hours.

ART 3811 - Metals Studio—Metalsmithing

Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1350, ART 1045, ART 1050 or ART 2330 and ART 2810 or permission of instructor. The techniques and aesthetics of metalsmithing; emphasis on manipulation of sheet metal for jewelry and holloware with studies in casting, non-ferrous forging, chasing, raising and other techniques. May be repeated up to 12 credit hours.

ART 3820 - Metals Studio—Blacksmithing

Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1045 and ART 2810, or

permission of instructor. This course focuses on steel as a decorative, functional and sculptural material. Technical assignments exploring traditional blacksmithing techniques progress to the development of an individual's style of work. May be repeated up to 6 credit hours.

ART 3821 - Metals Studio—Blacksmithing

Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050 or ART 2330, and ART 3820, or permission of instructor. Continuing development in steel as a decorative, functional and sculptural material. Technical assignments exploring traditional blacksmithing techniques progress to the development of an individual's style of work. May be repeated up to 6 credit hours.

ART 3830 - Independent Studies in Metals

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: Permission of the instructor. Independent production studies and emphasis on advanced creative design and skills in either light metals or blacksmithing. May be repeated up to 12 credit hours.

ART 3831 - Independent Studies in Metals

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: Permission of the instructor. Independent production studies and emphasis on advanced creative design and skills in either light metals or blacksmithing. May be repeated up to 12 credit hours.

ART 3910 - Intermediate Wood Studio

Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1045, ART 2910 or permission of instructor. Studies in the techniques of woodworking, furniture construction, and design. Hand and power tools, joinery, bending, stack lamination, turning, carving and finishing. May be repeated up to 12 credit hours.

ART 3911 - Intermediate Wood Studio

Studio 6. Credit 3.

Prerequisite: ART 1340, ART 1045, ART 2910 or permission of instructor. Studies in the techniques of woodworking, furniture construction, and design. Hand and power tools, joinery, bending, stack lamination, turning, carving and finishing. May be repeated up to 12 credit hours.

ART 3920 - Advanced Wood Studio

Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050 or ART 2330 and ART 3910 and ART 3911 or permission of instructor. Studies in advanced woodworking construction. Emphasis on cabinetry or seating, ergonomics, structure and design. May be repeated up to 12 credit hours.

ART 3921 - Advanced Wood Studio

Studio 6. Credit 3.

Prerequisite: ART 1350, ART 1050 or ART 2330 and ART 3910 and ART 3911 or permission of instructor. Studies in advanced woodworking construction. Emphasis on cabinetry or seating, ergonomics, structure and design. May be repeated up to 12 credit hours.

ART 3930 - Independent Studies in Woodworking

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: Permission of the instructor. Individual approaches to working in wood through specific projects arranged with the instructor. May be repeated up to 12 credit hours.

ART 3931 - Independent Studies in Woodworking

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: Permission of the instructor. Individual approaches to working in wood through specific projects arranged with the instructor. May be repeated up to 12 credit hours.

ART 3940 - Woodturning

Studio 6. Credit 3.

Principles and applied skills of spindle, faceplate, bowl and end grain turning.

ART 4040 - Art Criticism and Aesthetic Understanding

Credit 3.

Prerequisite: Successful completion of 3000 level studio classes. Aesthetic theories and criticism as related to craft material and concepts.

ART 4100 - Art Tour

Credit 3.

Prerequisite: Standing as a declared BFA major or ART 1035 or consent of instructor. A 1-2-week trip to view internationally recognized art. Additional preparatory studies and written assignments will be required. May be repeated for credit if trip is different.

ART 4170 - Ancient Mesoamerican Art

Lec. 3. Credit 3.

Art and architecture of Pre-Columbian Mesoamerican cultures, including Olmec, Maya, Teotihuacan, Monte Alban, Veracruz, Mixtec and Aztec.

ART 4210 - Design Practicum

Credit 4-8.

Prerequisite: ART 4240 or consent of instructor. Guided projects developing specific visual communications solutions to real world problems, addressing individual, organizational or service learning opportunities. Project proposal, assessment and evaluation schedule to be approved by the instructor prior to enrollment.

ART 4211 - Design Practicum

Studio 6. Credit 3.

Prerequisite: ART 3230 or permission of instructor. Guided projects developing specific visual communications solutions to real world problems, addressing individual, organizational or service learning opportunities. Project proposal, assessment and evaluation schedule to be approved by the instructor prior to enrollment.

ART 4220 - Design Internship

Credit 4-8.

Prerequisite: ART 4240 or consent of the instructor. Internship in an approved professional visual communications agency.

ART 4221 - Design Internship

Studio 6. Credit 3.

Prerequisite: ART 4211, ART 4231 or permission of instructor. Guided projects developing specific visual communications solutions to real world problems, addressing individual, organizational or service learning opportunities. Project proposal, assessment and evaluation schedule to be approved by the instructor prior to enrollment.

Can be repeated up to 6 hours in place of ART 4211: Design Practicum with permission of instructor.

ART 4230 - Design Portfolio

Credit 4.

Prerequisite: ART 4240 or consent of the instructor. Development and presentation of a professional quality portfolio of artwork and projects in digital media.

ART 4231 - Design Portfolio I

Studio 6. Credit 3.

Development and presentation of a professional quality portfolio of artwork and projects in digital media.

ART 4232 - Design Portfolio II

Studio 6. Credit 3.

Prerequisite: ART 4230. Continued development and presentation of a professional quality portfolio of artwork and projects in digital media.

ART 4240 - Special Problems in Design

Studio 8. Credit 4.

Prerequisite: ART 3210 or consent of the instructor. Targeted application of design media skills to content development and problem solving in individual and team design projects.

ART 4310 - Independent Studies in Drawing I

Studio 6. Credit 3.

Prerequisite: Permission of the instructor. Directed study in selected drawing media in specific projects arranged between the instructor and the student. May be repeated up to 12 credit hours.

ART 4311 - Independent Studies in Drawing II

Studio 6. Credit 3.

Prerequisite: Permission of the instructor. Directed study in selected drawing media in specific projects arranged between the instructor and the student. May be repeated up to 12 credit hours.

ART 4410 - Senior Thesis in Painting

Credit 1-6. Max. 18.

Prerequisite: Permission of the instructor and departmental approval. Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work. A 12-credit series of Senior Thesis classes culminate in a required final Thesis Exhibition. May be repeated up to 18 credit hours.

ART 4411 - Senior Thesis in Painting I

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4412 - Senior Thesis in Painting II

Stu. 6. Credit 3.

Guided individual studio projects leading to a

professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4413 - Senior Thesis in Painting III

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4414 - Senior Thesis in Painting IV

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4510 - Senior Thesis in Clay

Credit 1-6. Max. 18.

Prerequisite: Permission of the instructor and departmental approval. Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work. A 12-credit series of Senior Thesis classes culminate in a required final Thesis Exhibition. May be repeated up to 18 credit hours.

ART 4511 - Senior Thesis in Clay I

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4512 - Senior Thesis in Clay II

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4513 - Senior Thesis in Clay III

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4514 - Senior Thesis in Clay IV

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4540 - Special Problems in Clay

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: ART 3510, ART 3511 and permission of the instructor. Periodic advanced studio/lecture courses covering special topics not addressed in regular course offerings. May be repeated up to 12 credit hours.

ART 4610 - Senior Thesis in Fiber

Credit 1-6. Max. 18.

Prerequisite: Permission of the instructor and departmental approval. Guided individual studio projects leading to a professional level of technical, conceptual and design accomplishment in a stylistically coherent body of work. A 12-credit series of Senior Thesis classes culminate in a required final Thesis Exhibition. May be repeated up to 18 credit hours.

ART 4611 - Senior Thesis in Fibers I

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4612 - Senior Thesis in Fibers II

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4613 - Senior Thesis in Fibers III

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4614 - Senior Thesis in Fibers IV

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4640 - Special Problems in Fibers

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: ART 2610 or permission of the instructor. Individual studio projects agreed upon by the instructor and student. May be repeated up to 12 credit hours.

ART 4710 - Senior Thesis in Glass

Credit 1-6. Max. 18.

Prerequisite: Permission of the instructor and

departmental approval. Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work. A 12-credit series of Senior Thesis classes culminate in a required final Thesis Exhibition. May be repeated up to 18 credit hours.

ART 4711 - Senior Thesis in Glass I

Stu. 6. Credit 3.
Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4712 - Senior Thesis in Glass II

Stu. 6. Credit 3.
Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4713 - Senior Thesis in Glass III

Stu. 6. Credit 3.
Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4714 - Senior Thesis in Glass IV

Stu. 6. Credit 3.
Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4740 - Special Problems in Glass

Studio 2, 4, 6. Credit 1, 2, 3.
Prerequisite: Permission of the instructor. Individual studio projects agreed upon by the instructor and student. May be repeated up to 12 credit hours.

ART 4810 - Senior Thesis in Metals

Credit 1-6. Max. 18.
Prerequisite: Permission of the instructor and departmental approval. Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work. A twelve-credit series of Senior Thesis classes culminate in a required final Thesis Exhibition. May be repeated up to 18 credit hours.

ART 4811 - Senior Thesis in Metals I

Stu. 6. Credit 3.
Guided individual studio projects leading to a

professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4812 - Senior Thesis in Metals II

Stu. 6. Credit 3.
Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4813 - Senior Thesis in Metals III

Stu. 6. Credit 3.
Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4814 - Senior Thesis in Metals IV

Stu. 6. Credit 3.
Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4840 - Special Problems in Metals

Studio 2, 4, 6. Credit 1, 2, 3.
Prerequisite: Permission of the instructor. Individual studio projects agreed upon by the instructor and student. May be repeated up to 12 credit hours.

ART 4910 - Senior Thesis in Wood

Credit 1-6. Max. 18.
Prerequisite: Permission of the instructor and departmental approval. Guided individual studio projects leading to a professional level of technical accomplishment in a stylistically coherent body of work. A 12-credit series of Senior Thesis classes culminate in the required final exhibition. May be repeated up to 18 credit hours.

ART 4911 - Senior Thesis in Wood I

Stu. 6. Credit 3.
Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4912 - Senior Thesis in Wood II

Stu. 6. Credit 3,
Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4913 - Senior Thesis in Wood III

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4914 - Senior Thesis in Wood IV

Stu. 6. Credit 3.

Guided individual studio projects leading to a professional level of technical, conceptual, and design accomplishment in a stylistically coherent body of work.

ART 4940 - Special Problems in Wood

Studio 2, 4, 6. Credit 1, 2, 3.

Prerequisite: Permission of the instructor. Individual studio projects agreed upon by the instructor and student. May be repeated up to 12 credit hours.

ART 4950 - Special Problems in Art

Credit 1-3. Max. 9.

Individual study on a topic agreed upon by the instructor and the student.

ART 4960 - Special Problems in Art

Credit 1-3. Max. 9.

Individual study on a topic agreed upon by the instructor and the student.

ART 4970 - Special Problems in Art

Credit 1-3. Max. 9.

Individual study on a topic agreed upon by the instructor and the student.

Astronomy

ASTR 1010 - Introduction to Modern Astronomy

Fall, Spring. Lec. 3. Lab. 2. Credit 4.

Prerequisite: Background knowledge of high school Algebra and Geometry. Studies of the solar system, stars, and galaxies; recent advances in astronomy and astrophysics; and quasars, pulsars, black holes, cosmological theories, space exploration; non-technical survey of the principles of optics, and atomic and nuclear physics as applied to astronomy.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

ASTR 1020 - Introduction to Modern Astronomy

Fall, Spring. Lec. 3. Lab. 2. Credit 4.

Prerequisite: Background knowledge of high school

Algebra and Geometry. Studies of the solar system, stars, and galaxies; recent advances in astronomy and astrophysics; and quasars, pulsars, black holes, cosmological theories, space exploration; non-technical survey of the principles of optics, and atomic and nuclear physics as applied to astronomy.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

ASTR 3100 - Observational Astronomy

Lec. 3. Lab. 3. Credit 4.

Prerequisite: ASTR 1020 or consent of instructor.

Introduction to the observational and computational techniques in astronomy.

Biology

BIOL 1000 - Introduction to Biological Methods

Lec. 0. Lab. 2. Credit 1.

An introduction and orientation to the literature, research and computing skills utilized in the life sciences.

BIOL 1010 - Introduction to Biology

Lec. 3. Lab. 2. Credit 4.

Introduction to concepts of biology and their relationships to current and future social problems. Non-biology majors only. Credit will not be given for both BIOL 1010 and BIOL 1113.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

BIOL 1020 - Diversity of Life

Lec. 3. Lab. 2. Credit 4.

Note: BIOL 1010 is not a prerequisite. Survey of plant and animal diversity, introductory ecology, and man's impact on the environment. Non-biology majors only.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

BIOL 1080 - Concepts of Biology

Lec. 2. Lab. 2. Credit 3.

Basic concepts of biology including botany, zoology, and environmental applications. This course will not count as a part of a biology sequence.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

BIOL 1113 - General Biology I

Lec. 3. Lab. 2. Credit 4.

A basic foundation in biological principles common to all organisms with an emphasis on molecules, cells and organelles, respiration, photosynthesis, metabolism and enzymatic function, genetics and inheritance, cellular reproduction, evolution, and speciation. Credit will not be given for both BIOL 1113 and BIOL 1010.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

BIOL 1123 - General Biology II

Lec. 3. Lab. 2. Credit 4.

Prerequisite: BIOL 1113 is highly recommended.
Introduction to the principles of Zoology.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

BIOL 2000 - Biological Terminology

Lec. 1. Credit 1.

An introduction to biological terminology, including zoological, botanical, ecological, and medical terminology, with an emphasis on developing proficiency with the use of word roots and derivations.

BIOL 2010 - Human Anatomy and Physiology I

Lec. 3. Lab. 2. Credit 4.

Structure and function of the human body for nursing and other majors requiring a detailed examination of the topic. First course in a two-course sequence. (See BIOL 2020.)

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

BIOL 2020 - Human Anatomy and Physiology II

Lec. 3. Lab. 2. Credit 4.

Prerequisite: BIOL 2010. Continuation of BIOL 2010.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

BIOL 2310 - General Botany

Lec. 3. Lab. 3. Credit 4.

Prerequisite: It is highly recommended that students wait until their Sophomore year to take this course. This course addresses the life cycles, morphology, and phylogeny of major clades of organisms, with an emphasis on fungi, protists, and plants.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

BIOL 2350 - Introductory Anatomy and Physiology

Lec. 3. Lab. 2. Credit 4.

An introductory course in human anatomy and physiology intended for students of health and physical education, human ecology, psychology, and other majors requiring a basic survey of the topics.

BIOL 2991 - Topics

Cross-listing: WFS 2991

Credit 1.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four hours on a special topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299- Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

BIOL 2992 - Topics

Cross-listing: WFS 2992

Credit 2.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four hours on a special topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299- Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

BIOL 2993 - Topics

Cross-listing: WFS 2993

Credit 3.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four hours on a special topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299- Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

BIOL 2994 - Topics

Cross-listing: WFS 2994

Credit 4.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four hours on a special topic in the life sciences or wildlife/fisheries sciences under faculty supervision

and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299- Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

BIOL 3040 - Comparative Vertebrate Anatomy

Lec. 3. Lab. 3. Credit 4.
Prerequisite: BIOL 1113 and BIOL 1123. Anatomy and phylogeny of vertebrates and comparative study of systems of representative types.

BIOL 3060 - Comparative Vertebrate Embryology

Lec. 3. Lab. 2. Credit 4.
Prerequisite: BIOL 3140 or BIOL 3040. Gametes, fertilization, cleavage, and gastrulation. Derivatives of the germ layers and organ systems in representative vertebrates.

BIOL 3100 - Genetics (TN eCampus Course)

Credit 3.
Prerequisite: BIOL 1123 and BIOL 2310. Basic principles of traditional transmission genetics, as well as modern molecular genetics, delivered via PowerPoint presentations with an audio component. Note: This course is for teachers seeking a Biology Add-on Endorsement; it will not substitute for required genetics courses in Biological Sciences or related majors.

BIOL 3120 - General Ecology

Lec. 3. Credit 3.
The relationship between plants and animals and their environment. This course cannot be taken as part of the university science requirement and credit will not be given for both BIOL 3120 and BIOL/WFS 3130.

BIOL 3130 - General Ecology

Cross-listing: (WFS 3130)
Lec. 3. Lab. 3. Credit 4.
The relationship between plants and animals and their environment. The laboratory provides examples of concepts discussed in lecture and analytical procedures used in interpreting data.

BIOL 3140 - Cellular Biology

Lec. 3. Lab. 2. Credit 4.
Prerequisite: BIOL 1123. An introduction to structure and function of cells.

BIOL 3200 - General Microbiology

Lec. 2. Lab. 4. Credit 4.

Prerequisite: BIOL 1123. Introduction to basic concepts of microbiology (non-medical). Intended for students not in health-science programs. Credit will not be given for both BIOL 3200 and BIOL 3230.

BIOL 3230 - Health Science Microbiology

Lec. 3. Lab. 3. Credit 4.
Prerequisite: Sophomore standing. Introduction to microbiology. Intended for students majoring in nursing or other preprofessional programs. Credit will not be given for both BIOL 3200 and BIOL 3230.

BIOL 3240 - Field Botany

Lec. 2. Lab. 3. Credit 3.
Prerequisite: BIOL 2310 and Junior Standing. Survey of regional flora (herbs, shrubs, & trees) focusing on gymnosperms and angiosperms. Emphasis on nomenclature, structural characteristics, identification of species using a dichotomous key, and characteristics of plant families.

BIOL 3330 - Entomology

Lec. 2. Lab. 2. Credit 3.
Common harmful and beneficial insects of this region and their control.

BIOL 3530 - Animal Physiology

Lec. 3. Credit 3.
Prerequisite: BIOL 1113 and BIOL 1123. General principles of animal function.

BIOL 3550 - Ecology (TN eCampus Course)

Credit 3.
Prerequisite: BIOL 1123 and BIOL 2310. Introduction to the basic concepts of ecology, and the study of organisms and their interactions with the environment delivered primarily via PowerPoint presentations. Note: This course is for teachers seeking a Biology Add-on Endorsement; it will not substitute for required ecology courses in Biological Sciences or related majors.

BIOL 3700 - Humanism in Medicine

Lec. 3. Credit 3.
Prerequisite: Junior Standing. An introduction to ethics and humanism in medicine as a means of understanding the basic values and tenets of the medical profession. The course is especially designed for students who plan to become physicians, physical therapists, physician assistants, nurse practitioners, and related health-care professionals.

BIOL 3810 - General Genetics

Lec. 3. Lab. 2. Credit 4.

Prerequisite: BIOL 1113. Principles and laws governing inheritance in plants and animals including man.

BIOL 3920 - Biological Communication Skills

Lec. 3. Credit 3.

Prerequisite: Junior Standing. Locating and using resource materials, technical writing, and oral presentations in biological disciplines.

BIOL 4000 (5000) - General Parasitology

Lec. 3. Lab. 2. Credit 4.

Prerequisite: BIOL 1123, BIOL 3120 or BIOL 3130 or WFS 3130. Biology of animal agents and vectors of diseases with emphasis placed on medical parasitology and organisms that parasitize fish and wildlife species.

BIOL 4040 (5040) - Immunology

Lec. 3. Credit 3.

Prerequisite: Junior Standing. Introduction to basic principles of cellular and molecular immunology.

BIOL 4060 (5060) - Hormones and Chemical Communication

Lec. 3. Credit 3.

Prerequisite: BIOL 3140 and CHEM 1110 or CHEM 1210. A survey of hormones, their functions and mechanisms of action in vertebrate animals, including humans.

BIOL 4100 (5100) - Evolutionary Biology

Lec. 3. Credit 3.

Prerequisite: BIOL 3810 and BIOL 3130 or WFS 3130. Theories, evidences, principles, and examples of organic evolution. Emphasis on anatomical, chemical, ecological, geological, anthropological, and genetic factors.

BIOL 4120 (5120) - Protozoology

Lec. 3. Lab. 2. Credit 4.

Prerequisite: BIOL 3200 or BIOL 3230. Diversity, ecology, and taxonomy of protozoa, and the importance of protozoa as agents of human disease and as model organisms for studying eukaryotic cell biology.

BIOL 4130 (5130) - Environmental Microbiology

Lec. 2. Lab. 2. Credit 3.

Prerequisite: BIOL 3200 or BIOL 3230. The function of microorganisms in the environment.

BIOL 4140 (5140) - Pathogenic Bacteriology

Lec. 3. Credit 3.

Prerequisite: BIOL 3200 or BIOL 3230. Common bacterial pathogens will be reviewed, including: 1. How they cause disease; 2. Virulence factors and how they are identified and studied; and 3. Prevention of disease transmission.

BIOL 4150 (5150) - Molecular Genetics

Lec. 3. Credit 3.

Prerequisite: BIOL 3810, CHEM 3005 or CHEM 3020. Molecular basis of inheritance with special emphasis on microorganisms.

BIOL 4160 (5160) - Genetic Engineering Laboratory

Lab. 4. Credit 2.

Prerequisite or corequisite: BIOL 4150 (5150). Techniques of bacterial genetics and recombinant DNA methodology.

BIOL 4170 (5170) - Population and Conservation Genetics

Lec. 3. Credit 3.

Prerequisite: BIOL 1123 and BIOL 3810. Introduction to empirical and theoretical conservation genetics.

BIOL 4220 (5220) - Biostatistics

Cross-listing: (WFS 4220 (5220))

Lec. 3. Credit 3.

Prerequisite: MATH 1530 or MATH 1830. Probability and frequency distribution; statistical populations and samples; and tests of hypotheses used in biological research.

BIOL 4230 (5230) - Animal Behavior

Cross-listing: (WFS 4230 (5230))

Lec. 3. Credit 3.

Prerequisite: Junior Standing. Introduction to basic principles underlying the behavior of animals.

BIOL 4240 (5240) - Systematic Botany

Lec. 2. Lab. 3. Credit 3.

Prerequisite: BIOL 3240. Principles of evolutionary relationships among major plant groups, with an emphasis on the phylogeny of gymnosperms and flowering plant families.

BIOL 4250 (5250) - Economic Botany

Lec. 3. Credit 3.

Prerequisite: BIOL 2310. Interrelationships between plants and people. Topics include a survey of the past, present, and future uses of plants and the role of conservation biology in the preservation of plant resources.

BIOL 4300 (5300) - Plant Speciation and Evolution

Lec. 3. Credit 3.

Prerequisite: BIOL 1123. Principles of the evolution of plants at the micro- and macroevolution levels, including a survey of relevant primary and secondary literature.

BIOL 4310 (5310) - Plant Anatomy

Lec. 2. Lab. 3. Credit 3.

Prerequisite: BIOL 2310 and Junior Standing. A comparative study of the structure of vascular plants in relation to function.

BIOL 4320 (5320) - Plant Physiology

Lec. 2. Lab. 3. Credit 3.

Physiological activities of seed plants, including photosynthesis, respiration, mineral nutrition, flowering, seed formation, and dormancy.

BIOL 4330 (5330) - Plant Ecology

Lec. 2. Lab. 3. Credit 3.

Prerequisite: BIOL 2310 and Junior Standing. Biotic and abiotic factors affecting the distribution and abundance of plant species and the role of plants in ecosystem structure and function.

BIOL 4340 (5340) - Plant-Animal Interactions

Lec. 3. Lab. 3. Credit 3.

Prerequisite: BIOL 2310 and junior standing. Interactions of plants and animals in aquatic, terrestrial, and atmospheric environments at various ecological scales.

BIOL 4610 (5610) - Invertebrate Zoology

Lec. 2. Lab. 2. Credit 3.

Prerequisite: BIOL 3130 or WFS 3130. Biology of invertebrates with emphasis on morphology, systematics and ecology.

BIOL 4630 (5630) - Ornithology

Cross-listing: (WFS 4630 (5630))

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. General survey of the class Aves with emphasis on morphology, identification and ecology of local birds.

BIOL 4650 (5650) - Marine Biology

Cross-listing: (WFS 4650 (5650))

Lec. 3. Lab. 2. Credit 4.

Prerequisite: BIOL 3130 or WFS 3130. An introduction to the study of the marine environment and marine organisms.

BIOL 4750 (5750) - Medical Microbiology

Lec. 2. Lab. 4. Credit 4.

Prerequisite: BIOL 3200 or BIOL 3230. A survey of microorganisms of medical importance with emphasis on the bacteria and viruses. Principles of infectious disease, including diagnostic methods and treatments. Laboratory exercises demonstrating methods of isolating and identifying pathogenic microorganisms.

BIOL 4780 (5780) - Phycology

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Introduction to freshwater algae.

BIOL 4810 (5810) - Ichthyology

Cross-listing: (WFS 4810 (5810))

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Identification, classification, anatomy, physiology, ecology and adaptations of fishes; emphasis on North American freshwater species.

BIOL 4820 (5820) - Mammalogy

Cross-listing: (WFS 4820 (5820))

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Classification, structure and function, phylogeny, and geographical distribution of mammals; emphasis on Tennessee mammals.

BIOL 4830 (5830) - Herpetology

Cross-listing: (WFS 4830 (5830))

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Classification, adaptations, habits, life histories, and geographical distribution of amphibians and reptiles; emphasis on North American species.

BIOL 4840 (5840) - Limnology

Cross-listing: (WFS 4840 (5840))

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Physiochemical and biological dynamics of inland water.

BIOL 4850 (5850) - Applied Microbiology

Lec. 2. Lab. 2. Credit 3.

Prerequisite: Consent of instructor. Microbial production of foods and chemicals; microorganisms in food spoilage.

BIOL 4900 - Internship in Biology

Credit 3.

See instructions prior to enrolling. Students work with a public agency or private company or organization that is compatible with their interest. (May be taken twice if the assignments are with different organizations or with different divisions with an organization.)

BIOL 4991 (5991) - Advanced Topics

Cross-listing: WFS 4991 (5991)

Credit 1.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four credit hours on an advanced topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299-Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

BIOL 4992 (5992) - Advanced Topics

Cross-listing: WFS 4992 (5992)

Credit 2.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four credit hours on an advanced topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299-Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

BIOL 4993 (5993) - Advanced Topics

Cross-listing: WFS 4993 (5993)

Credit 3.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four credit hours on an advanced topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299-Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

BIOL 4994 (5994) - Advanced Topics

Cross-listing: WFS 4994 (5994)

Credit 4.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four credit hours on an advanced topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of

combined credit in BIOL (WFS) 299-Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

Gulf Coast Research Laboratory Program

MBIO 3000 - Oceanography I: Physical, Chemical and Geological

Summer. Credit 5.

Prerequisite: College Algebra and two semesters of Chemistry. Integration of chemical, geological, and physical oceanography to provide a multidisciplinary approach to the fundamentals of oceanography. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 3010 - Oceanography II: Marine Biology

Summer. Credit 5.

Prerequisite: Eight semester hours of Biology. General introduction to marine biology with emphasis on local fauna and flora. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4030 (5030) - Marine Invertebrate Zoology

Summer. Credit 6.

Prerequisite: 16 semester hours of Biology. Structure, classification, phylogeny, and function in Protozoa through the Lophophorata. Observation of their ecology and behavior. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4040 (5040) - Parasites of Marine Animals

Summer. Credit 6.

Prerequisite: BIOL 3200 or BIOL 3230 or consent of instructor. Morphology, taxonomy, life histories, and host-parasite relationships. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4050 (5050) - Marine Ecology

Summer. Credit 5.

Prerequisite: 16 semester hours of Biology, including General Zoology, General Botany, and Invertebrate Zoology. Relationship of marine organisms to their environment. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4060 (5060) - Fauna and Faunistic Ecology of Tidal Marshes

Summer. Credit 4.

Prerequisite: 16 semester hours of Biology and Junior Standing or consent of instructor. Taxonomy,

distribution, trophic relationships, reproductive strategies, and adaptations. Emphasis on northern Gulf marshes. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4070 (5070) - Marine Aquaculture

Summer. Credit 6.
Prerequisite: 16 semester hours of Zoology, including Invertebrate and Vertebrate Zoology of Ichthyology. Technology, principles, and problems of aquaculture. Emphasis on marine species. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4080 (5080) - Marine Ichthyology

Summer. Credit 6.
Prerequisite: 12 semester hours of Biology and Junior Standing. Marine Chordata, including lower groups and the mammals and birds. Emphasis on fishes. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4090 (5090) - Marine Microbiology

Summer. Credit 5.
Prerequisite: BIOL 3200 or BIOL 3230 or consent of instructor. Sampling procedures, taxonomy of marine bacteria, mineralization, microbial, fouling, pollution, and diseases of marine animals. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4100 (5100) - Marine Fisheries Management

Summer. Credit 4.
Prerequisite: Consent of instructor. Overview of practical marine fishery management program. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4200 (5200) - Marine Phycology

Summer. Credit 4.
Prerequisite: Eight semester hours of Biology, including introductory Botany or consent of instructor. Survey of the principal groups of marine algae and maritime flowering plants. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4210 (5210) - Coastal Vegetation

Summer. Credit 3.
Prerequisite: 10 semester hours of Biology, including General Biology. Aspects of coastal vegetation. Emphasis on local examples. This course is offered at

the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4220 (5220) - Salt Marsh Plant Ecology

Summer. Credit 4.
Prerequisite: General Botany, Plant Taxonomy, Plant Physiology, General Ecology or consent of instructor. Identification, composition, structure, distribution, primary productivity, ecology, and development. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4300 (5330) - Comparative History of Marine Organisms

Fall, Spring, Summer. Credit 1-6.
Prerequisite: Consent of instructor. Processing tissues using light, transmission electron, and scanning electron microscopy. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4410 (5410) - Marine Chemistry

Summer. Credit 6.
Prerequisite: 16 semester hours of Chemistry, three to six semester hours of Biology and Geology or consent of instructor. Chemical aspects of oceans and interactions of chemistry, biology, and geology in marine environments. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4440 (5440) - Behavior and Neurobiology of Marine Animals

Summer. Credit 4.
Prerequisite: 16 semester hours of Zoology and/or Psychology or consent of instructor. Behavior, neuroanatomy, and neurophysiology. Emphasis on neural mechanisms underlying behavior. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4570 (5570) - Marine Science for Teachers

Summer. Credit 3.
Prerequisite: Biology background or consent of instructor. Introduction to marine science for public school teachers. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4580 (5580) - Marine Science for Elementary Teachers

Summer. Credit 3.
Prerequisite: Six semester hours of Biology. Materials and methods in teaching marine science to elementary

students. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4590 (5990) - Special Problems in Marine Science

Fall, Spring, Summer. Credit 1-6.

Prerequisite: To be set by problem director. Research oriented problems reported in writing. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

MBIO 4910 (5910) - Special Topics in Marine Science

Fall, Spring, Summer. Credit 1-6.

Prerequisite: To be set by topics advisor. Special study in a field topic approved by the GCRL Topics Advisor and the student's institutional advisor. This course is offered at the Gulf Coast Research Laboratory, Ocean Springs, MS.

Business Law

LAW 2810 - Business Legal Environment and Ethics

Lec. 3. Credit 3.

The legal aspects of the business environment including antitrust, administrative, consumer, and employment law; business organizations; and principles of contracts.

LAW 4720 - Business Law

Lec. 3. Credit 3.

Law related to business practices and procedures, including personal property, bailments, sales, commercial paper, and legal aspects of organizing, operating, and terminating a business. Enrollment in Junior- or Senior-level Law courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

LAW 4900 - Topics

Lec. 3. Credit 3.

Prerequisite: Senior Standing or consent of instructor. Selected topics involving the legal environment. A student may take LAW 4900 twice provided the topic is different each time. Enrollment in Junior- or Senior-level Law courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

LAW 5100 - Business Law and Legal Environment

Lec. 3. Credit 3.

The basic legal instruments and legal principles comprising the legal environment of business, integrated

with contemporary ethical, social, and political issues. Enrollment in Junior- or Senior-level Law courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

Business Management

BMGT 3510 - Management and Organization Behavior

Lec. 3. Credit 3.

Management functions and processes as applied to organizations with special emphasis on the behavioral aspects. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 3525 - Internship in Management.

Lec. 3. Credit 3.

Prerequisite: Consent of Management Internship Coordinator or Department Chairperson. A directed professional experience in the field of Management. Junior or Senior Standing Required.

BMGT 3600 - International Management

Lec. 3. Credit 3.

Prerequisite: BMGT 3510. Explore organization and management issues in international business. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 3630 - Human Resource Management

Lec. 3. Credit 3.

Prerequisite: BMGT 3510. Personnel management policies, practices, and laws. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 3720 - Business Communication I

Lec. 3. Credit 3.

Principles and practices in developing appropriate business messages that report primary and secondary research in a variety of styles. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 4100 - Staffing

Lec. 3. Credit 3.

Prerequisite: BMGT 3630. This course will focus on the

recruitment, selection, and retention of human resources within organizations. Students will learn methods and processes by which organizations plan for their staffing needs, recruit applicants, select new employees, and socialize new employees. Students will also learn how the staffing function influences organizational performance and how the staffing function is influenced by the legal, social, organizational, and technological environments in which staff decisions are made. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 4120 (5120) - Compensation Administration

Lec. 3. Credit 3.
Prerequisite: BMGT 3630. Theory and practice of determining wages, salaries, and employee benefits. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 4150 - Employment and Labor Law

Lec. 3. Credit 3.
Prerequisite: BMGT 3630. An overview of legal issues affecting the employment relationship in business, from a managerial perspective. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 4410 (5410) - Conflict Management and Negotiation

Lec. 3. Credit 3.
Development of interpersonal skills for managing conflict and negotiations in business. Students must have Junior or Senior standing. All Business majors must have completed the Basic Business Program.

BMGT 4520 (5520) - Organizational Leadership

Lec. 3. Credit 3.
Prerequisite: BMGT 3510. An examination of behavioral concepts required for effective leadership within business organizations. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 4610 - Training and Development

Lec. 3. Credit 3.
Prerequisite: BMGT 3510. Development of skills in employee development and training in a wide range of business contexts. Enrollment in Junior- or Senior-level

BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 4720 - Business Communication II

Lec. 3. Credit 3.
Prerequisite: BMGT 3720. Analyzing and presenting solutions for cases and problems involving business transactions. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 4900 - Special Topics in Management

Lec. 3. Credit 3.
Prerequisite: Consent of instructor. Current topics in management. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 4930 (5930) - Business Strategy

Lec. 3. Credit 3.
Prerequisite: BMGT 3510, FIN 3210 and MKT 3400.
Prerequisite or corequisite: DS 3520. A capstone course stressing management problem analysis, problem solving, and decision-making. Enrollment in Junior- or Senior-level BMGT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

BMGT 5150 - Management and Organization

Lec. 3. Credit 3.
Fundamentals of management that permeate organizations, including administrative structure and organizational environment, operations and organizational behavior. Enrollment in junior- or senior-level law courses requires junior standing. All business majors must have completed the Basic Business Program.

Career Technical Education

CTE 3230 - Shop, Lab, and Classroom Organization for Career Technical Education

Lec. 3. Credit 3.
Orientation to the safe and efficient management of classroom, shop, and lab facilities.

CTE 4030 (5030) - Curricular and Program Development for Career Technical Education

Lec. 3. Credit 3.

A study of the fundamental steps involved in the development of curriculum in industrial education.

CTE 4040 (5040) - Advisory Committees in Industrial Education

Lec. 3. Credit 3.

A study on how to effectively establish and utilize advisory committees for student programs in industrial education.

CTE 4050 (5050) - Academic and Vocational Interdependence

Lec. 3. Credit 3.

A study on how to infuse the academic and vocational programs into a unified educational delivery system.

CTE 4060 (5060) - Safety in Industrial Education

Lec. 3. Credit 3.

A study of the safety requirements associated with the provision of a safe learning environment in industrial education.

CTE 4070 (5070) - History and Philosophy of Industrial Education

Lec. 2. Credit 2.

History of industrial education in the United States and special focus on the development of a personal philosophy of industrial education.

CTE 4080 (5080) - Career Technical Student Organizations and Teaching Supervision

Lec. 3. Credit 3.

The methods of establishment, supervision and evaluation of vocational youth organizations in industrial education.

CTE 4090 (5090) - Career Technical Education for Students with Special Needs

Lec. 3. Credit 3.

Overview of the nature of special needs students, technique of modification of vocational curriculum, and development of appropriate teaching materials.

CTE 4850 (5850) - Use of Technology in Career Technical Education

Credit 1-3.

Laboratory approach providing opportunities for experienced educational personnel to concentrate their study in depth.

Chemical Engineering

CHE 1010 - Introduction to Chemical Engineering

Lec. 1. Credit 1

Prerequisite: Freshman Standing. Information is provided to potential chemical engineering majors in a variety of areas including: curriculum linkages, the profession, collaborative work environments, faculty interaction, mentoring opportunities, professional societies, and laboratory skills.

CHE 1020 - Processes, Products and Ethics

Lec. 1. Credit 1.

Professionalism and Ethics are central in the practice of Engineering. Fundamental program outcome addressed formally in this course and applied throughout the curriculum in various manners.

CHE 2010 - Introduction to Chemical Engineering Analysis

Lec. 3. Credit 3.

Prerequisite: ENGR 1120, CHEM 1120 and MATH 1910. Quantitative descriptions of chemical engineering systems. Conservation equations, rate processes, and mathematical analysis.

CHE 2015 - Introduction to Chemical and Biological Process Analysis and Scaling I

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ENGR 1120 and MATH 1920. May be taken concurrently. Introduction to basic concepts of chemical engineering including unit analysis, balance concepts and various mathematical tools including use of software such as Excel, MatLab and Visual Basic.

CHE 2020 - Introduction to Chemical and Biological Process Analysis and Scaling II

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ENGR 1120, C or better in CHE 2015, MATH 1920, and CHEM 1120. Quantitative descriptions of chemical and biological engineering systems. Conservation of mass for single and multi-process units as well as for reactive and non-reactive systems. Lab introduces report writing and basic measurement techniques.

CHE 3010 - Thermodynamics of Chemical Processes

Lec. 3. Credit 3.

Prerequisite: CHE 2015. Minimum grade of C. CHE 2020, MATH 2110, and MATH 2120. Application of the 1st and 2nd Laws of Thermodynamics to the analysis of single and multi-phase processes for both closed and open systems.

CHE 3021 - Separations and Solution Thermodynamics

Lec. 3. Lab. 2. Credit 4.

Prerequisite: CHE 3010, MATH 2110 and MATH 2120.

Analysis and prediction of mixture properties at equilibrium in single and multiple phases. Lab is focused on solution thermodynamic topics and industrially-relevant separation processes.

CHE 3111 - Transfer Science I: Conduction, Radiation and Diffusion

Lec. 3. Lab. 2. Credit 4.

Prerequisite: CHE 2015, CHE 2020, MATH 2110 and MATH 2120. Energy and mass conservation principles. Experimental studies of heat and diffusive mass transfer. Design and operation of systems for heat and mass transfer with applications to heat exchange and diffusive motion.

CHE 3121 - Transfer Science II: Fluid Mechanics

Lec. 3. Lab. 2. Credit 4.

Prerequisite: CHE 3111, MATH 2110 and MATH 2120. Theory of mass and momentum conservation principles. Experimental studies of fluid mechanics. Design and operation of systems involving fluids with application to fluid flow and fluid property measurements. MATH 2110 may be taken concurrently with permission from the department.

CHE 3730 - Chemical Engineering Operations

Lec. 3. Credit 3.

Prerequisite: ENGR 1120, MATH 1920 and CHE 2015. Minimum grade of C. Decision-making techniques as applied to management of chemical processing plants.

CHE 3990 - Introduction to Research Methods

Lab. 2. Credit 1.

Prerequisite: Consent of instructor. Introduces students to research methods used within chemical engineering.

CHE 4131 (5131) - Transfer Science III: Diffusion and Diffusive-Convective Mass Transfer

Lec. 3. Lab. 2. Credit 4.

Prerequisite: CHE 3010, CHE 3021, CHE 3111 and CHE 3121. Mathematical description of diffusion and diffusive-convective mass transfer. Mass transfer with reaction. Dimensional Analysis. Mass transfer in one and two-dimensions in Cartesian, cylindrical, and spherical coordinates. Integrated labs demonstrating the concept of diffusion, computational experiments, and

demonstrating the effect of geometry, flow, etc., on mass transfer.

CHE 4210 (5210) - Chemical Reaction Engineering

Lec. 3. Lab. 1. Credit 4.

Prerequisite: CHE 3010, CHE 3021, CHE 3111, and CHE 3121. Chemical reaction kinetics and chemical reactor design. There is an emphasis on homogeneous reactions and ideal and non-ideal reactors. Introduction to laboratory experiments to illustrate typical situations found in chemical reacting systems: kinetics parameter determination, residence time visualization, introduction to different types of reactors (i.e., batch, tubular and gradientless.)

CHE 4240 - Chemical Engineering Capstone Project

Lab. 3. Credit 1.

Prerequisite: CHE 3111, CHE 3121, CHE 4131 (5131), CHE 3010, CHE 3021, CHE 4410, CHE 4210 (5210), CHEM 3010, CHEM 3020 or consent of instructor.

Project serves as a culminating experience for the student. Project content varies depending on the interests of the student, project team, and project sponsors. Projects serve to integrate junior and senior level coursework, promote an understanding of team dynamics and the development of project management skills.

CHE 4245 - Clinical Immersion

Ind. 3. Credit 3.

Prerequisite: Junior or Senior standing in chemical engineering or other engineering discipline, or consent of the instructor. This course focuses on team-based identification of unmet medical needs and development of robust solutions. Select disease conditions will be discussed and technologies used to address those conditions will be examined. Students will participate in simulation lab and clinical immersion for experiential learning in hospitals, urgent care facilities, assisted living facilities, senior citizen centers, and/or other healthcare settings.

CHE 4300 (5300) - Introduction to Air Pollution

Lec. 3. Credit 3.

Prerequisite: CHE 4131 (5131). Problems of air pollution and their solutions. Analysis and design of devices for the control of air pollutants from chemical processes.

CHE 4330 (5330) - Polymer Engineering

Lec. 3. Credit 3.

Prerequisite: CHEM 3010. Polymerization kinetics for key commercial polymers, structure/property

relationships and characterization of key polymers, processing fundamentals, fundamentals of formulation of polymer composites and blends (nanocomposites, biopolymers.)

CHE 4335 - Fuel Cells

Lec. 3. Credit 3.

Prerequisite: CHE 3010 or ME 3210 and CHEM 3510. CHEM 3510 may be taken concurrently.

Emphasis will be on electrochemical techniques, fundamental principles and technologies related to proton exchange membrane fuel cells. The course will delineate theoretical energy vs. specific losses: including ohmic, mass transport, and catalytic losses. Advanced materials for specific proton exchange membrane fuel cells will be discussed and diagnostic testing methodologies will be demonstrated (polarization curves, electrochemical impedance spectroscopy, and cyclic voltammetry).

CHE 4410 - Process Design I

Lec. 3. Credit 3.

Prerequisite: CHE 3021 and CHE 3121. Design and synthesis of chemical systems using basic engineering principles with integration of reliability, safety and environmental aspects. The economics involved in the design of chemical plants such as capital cost, profitability, operating costs, and alternative evaluation.

CHE 4420 - Process Design II

Lec. 2. Lab. 1. Credit 3.

Prerequisite: CHE 4410. Continuation of Design I but with emphasis on complex chemical systems and innovation in design. Introduction to process modeling, the use of computer-aided process design, and analysis.

CHE 4440 - Protein Engineering

Lec. 3. Credit 3.

Students will apply principles of molecular biology and protein engineering to improve the properties of a selected protein. Computational tools and experimental methods will be applied to mutate and enhance the characteristics of proteins, which will hopefully lead to publishable results. Students will have to think about the subject creatively and use more than just knowledge from a textbook to solve the challenges encountered in the course.

CHE 4470 (5470) - Interdisciplinary Studies in Ceramic Materials Processing

Lec. 3. Credit 3.

Prerequisite: Senior Standing in Engineering,

Mathematics, Chemistry (Calculus-based), or Physics. Selected materials synthesis for metals, ceramics, and their composites; application of fracture mechanics and failure models; mechanical, chemical, and morphological characterization theory and practice; and materials design.

CHE 4510 (5510) - Applied Mathematics in Chemical Engineering

Lec. 3. Credit 3.

Prerequisite: CHE 3021, CHE 3121, MATH 2120 and Senior Standing. Applied numerical methods and the solution of differential equations in chemical engineering.

CHE 4540 - Process Dynamics and Control

Lec. 3. Credit 3.

Prerequisite: CHE 4131 (5131) and CHE 4210 (5210). Analysis of the dynamic behavior of chemical processes. Basic control principles and methods of measuring and controlling process variables.

CHE 4660 (5660) - Biochemical Engineering

Lec. 3. Credit 3.

Prerequisite: CHE 4210 (5210) and Senior Standing or consent of instructor. Applications of Chemical Engineering principles to the study of biochemical systems.

CHE 4661 (5661) - Transport in Biochemical and Biological Processes

Lec. 2. Lab. 2. Credit 3.

Prerequisite: CHE 3111, CHE 3121, CHE 4131 (5131), CHE 4210 (5210). Applications of chemical engineering principles to the study of biochemical and biological systems. Lab is centered around various techniques used in the biochemical and biological field.

CHE 4910 - Professionalism and Ethics in Chemical Engineering

Lec. 1. Credit 1.

Prerequisite: Senior Standing in Chemical Engineering. Presentation and discussion of topics relevant to the ethics and professional behavior in the chemical engineering profession, including professional licensure. Research methodology and graduate studies preparation is also discussed.

CHE 4911 - Professionalism and Ethics in Chemical Engineering—BS/MS Fast Track

Lec. 1. Credit 1.

Prerequisite: Students approved for BS-MS Fast Track.

Presentation and discussion of topics relevant to the ethics and professional behavior in the chemical engineering profession, including professional licensure. Research methodology and graduate studies preparation is also discussed.

CHE 4971 - Special Topics in Chemical Engineering

Credit 1.
Special topics in chemical engineering taught on an as needed basis.

CHE 4972 - Special Topics in Chemical Engineering

Credit 2.
Prerequisite: Senior Standing. Special topics in chemical engineering taught on an as needed basis.

CHE 4973 - Special Topics in Chemical Engineering

Credit 3.
Prerequisite: Senior Standing. Special topics in chemical engineering taught on an as needed basis.

CHE 4990 - Undergraduate Research

Credit 1 to 3 per semester. Maximum 12.
Prerequisite: CHE 3990. Research and development problems, laboratory investigations, planning experimental programs, and correlating and reporting results through written works and presentations. Because of the impossibility of duplicating the conditions on a special problem, this course may not be repeated for the improvement of a grade.

Chemistry

CHEM 1000 - Chemistry Problem Solving

Lec. 3. Credit 3.
An introductory course for students without sufficient high school background in chemistry. Topics include metric system, atomic structure, bonding, stoichiometry, solutions and some descriptive chemistry. Not degree credit as Chemistry course. May be used for elective credit in some programs. Students may not register for this course if they have credit for any other college Chemistry course. May not be taken concurrently with any Chemistry course, excluding CHEM 1500.

CHEM 1010 - Introductory Chemistry I

Fall, Spring. Lec. 3. Lab. 3. Credit 4.
Overview of chemical principles and applications. Laboratories emphasize general principles of chemistry.

◆ Meets Tennessee Technological University general

education requirement (Natural Sciences). Chemistry majors may not earn credit in both CHEM 1010 and 1110 or both 1020 and 1120. Credit will not be given for both CHEM 1210, 1310 and any of the above courses.

CHEM 1020 - Introductory Chemistry II

Fall, Spring. Lec. 3. Lab. 3. Credit 4.
Prerequisite: CHEM 1010. Overview of chemical principles and applications. Laboratories emphasize general principles of Chemistry.

Chemistry majors may not earn credit in both CHEM 1010 and 1110 or both 1020 and 1120. Credit will not be given for both CHEM 1210, 1310 and any of the above courses.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

CHEM 1050 - Foundations of Chemistry Laboratory

Lab. 2. Credit 1.
Corequisite: CHEM 1000. Selected experiments to complement lecture material in CHEM 1000.

CHEM 1110 - General Chemistry I

Fall, Spring. Lec. 3. Lab. 3. Credit 4.
Basic course in General Chemistry for curricula requiring more than one year of Chemistry. Laboratory includes qualitative analysis procedures.

Chemistry majors may not earn credit in both CHEM 1010 and 1110 or both 1020 and 1120. Credit will not be given for both CHEM 1210, 1310 and any of the above courses.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

CHEM 1111 - General Chemistry I Honors Recitation

Rec. 1. Credit 0.
Corequisite: CHEM 1110. An ACT score of 30 or higher is also recommended. Selected topics to add depth to the understanding of the material in CHEM 1110. Honors students can receive honors credit for CHEM 1110 by satisfactorily completing both CHEM 1110 and CHEM 1111.

CHEM 1120 - General Chemistry II

Fall, Spring. Lec. 3. Lab. 3. Credit 4.
Prerequisite: CHEM 1110 with a grade of C or better. Basic course in general chemistry for curricula requiring more than one year of chemistry. Laboratory includes

qualitative analysis procedures.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences). Chemistry majors may not earn credit in both CHEM 1010 and 1110 or both 1020 and 1120. Credit will not be given for both CHEM 1210, 1310 and any of the above courses.

CHEM 1121 - General Chemistry II Honors Recitation

Rec. 1. Credit 0.

Corequisite: CHEM 1120. A grade of A or B in CHEM 1110 is also recommended. Selected topics to add depth to the understanding of the material in CHEM 1120. Honors students can receive honors credit for CHEM 1120 by satisfactorily completing both CHEM 1120 and CHEM 1121.

CHEM 1210 - Chemistry for the Life Sciences

Fall. Lec. 3. Lab. 2. Credit 4.

Introduction to chemical principles and their applications to health and disease, which will include chemical structures, moles, organic chemistry and biochemistry. A knowledge of general mathematics is needed for the use of conversion factors, making of solutions, and calculation of dosages and dilutions. This course will not count as part of a chemistry sequence.

Chemistry majors may not earn credit in both CHEM 1010 and 1110 or both 1020 and 1120. Credit will not be given for both CHEM 1210, 1310 and any of the above courses.

CHEM 1310 - Concepts of Chemistry

Fall, Spring. Lec. 2. Lab. 2. Credit 3.

Basic principles of Chemistry including atomic structure, chemical bonding, basic stoichiometry, organic and inorganic compounds, and kinetic theory. Will not count as part of a Chemistry sequence.

Chemistry majors may not earn credit in both CHEM 1010 and 1110 or both 1020 and 1120. Credit will not be given for both CHEM 1210, 1310 and any of the above courses.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

CHEM 1500 - First Year Interactions and Advisement

Lec. 1. Act. 1. Credit 1.

This course engages the student in meaningful classroom and out-of-the-classroom activities. This is intended for chemistry majors and emphasizes

information, activities, and requirements important to becoming an active and competent chemist.

CHEM 1971 - Special Topics in General Chemistry

Fall, Spring. Lec. 0-1. Lab. 0-3. Credit 1.

Prerequisite: Consent of chair and instructor. Timely topics in Chemistry. Course may be taken for credit more than once.

CHEM 1972 - Special Topics in General Chemistry

Fall, Spring. Lec. 0-2. Lab. 0-3. Credit 2.

Prerequisite: Consent of chair and instructor. Timely topics in Chemistry. Course may be taken for credit more than once.

CHEM 1973 - Special Topics in General Chemistry

Fall, Spring. Lec. 0-3. Lab. 0-3. Credit 3.

Prerequisite: Consent of chair and instructor. Timely topics in Chemistry. Course may be taken for credit more than once.

CHEM 2010 - Introduction to Inorganic Chemistry

Fall. Lec. 3. Credit 3.

Prerequisite: CHEM 1120. Introduction to the basic principles of inorganic chemistry including bonding, nomenclature, coordination chemistry, molecular orbital theory, and basic transition metal organometallic chemistry.

CHEM 2720 - Clinical Pharmacology

Fall. Lec. 2. Credit 2.

Prerequisite: CHEM 3010. Principles of Pharmacology including chemical structures, actions and reactions of drugs. Does not count as technical elective in chemistry.

CHEM 2810 - History of Scientific Thought

Fall. Lec. 3. Credit 3.

Development of the scientific theories and concepts from antiquity through the 18th century. Does not count as technical elective in chemistry.

CHEM 2820 - History of Scientific Thought

Spring. Lec. 3. Credit 3.

Development of natural sciences in the 19th and 20th centuries. Does not count as technical elective in chemistry.

CHEM 2910 - Undergraduate Research Methods

Lec. 1. Credit 1.

Prerequisite: Permission of the instructor. CHEM 2910 is

designed to introduce undergraduate students to the methods used in conducting research. This course is designed to teach students key skills utilized in a research setting, methods of data analysis, as well as how to disseminate information obtained through research. Upon completion of this course, students will be prepared to work effectively in a chemistry department research lab.

CHEM 3005 - Elementary Organic Chemistry

Fall, Spring. Lec. 3. Lab. 3. Credit 4.
Prerequisite: CHEM 1020 or CHEM 1120. Aliphatic and Aromatic Organic Chemistry for students in Agriculture, Human Ecology, and Pre-Medical Technology. Not for Chemistry majors.

CHEM 3010 - Organic Chemistry I

Fall, Spring. Lec. 3. Lab. 3. Credit 4.
Prerequisite: CHEM 1120 with a grade of C or better. Study of carbon-containing compounds using the functional group approach and an emphasis in simple mechanisms of aliphatic and aromatic compounds.

CHEM 3020 - Organic Chemistry II

Fall, Spring. Lec. 3. Lab. 3. Credit 4.
Prerequisite: CHEM 3010 with a grade of C or better. Study of carbon-containing compounds using the functional group approach and an emphasis in simple mechanisms of aliphatic and aromatic compounds.

CHEM 3410 - Quantitative Analysis

Fall. Lec. 2. Lab. 6. Credit 4.
Prerequisite: CHEM 1120. Introduction to chemical analysis including titrimetric and gravimetric methods involving acid-base, oxidation-reduction, and complexometric techniques. Application of mass action, equilibria, and indicators to chemical analysis. Introduction to instrumental analysis including electrochemical and spectroscopic methods.

CHEM 3420 - Analytical Applications

Spring. Lec. 2. Lab. 3. Credit 3.
Prerequisite: CHEM 3410. The application of wet chemical and instrumental methods of analysis to real problems in chemistry, biochemistry and the environment.

CHEM 3500 - Elements of Physical Chemistry

Spring. Lec. 3. Credit 3.
Prerequisite: CHEM 1120, MATH 1830 or MATH 1910. Survey of physical chemistry designed for those desiring

the B.S. degree with a major in chemistry, education, pre-professional studies, biology or students in general.

CHEM 3510 - Physical Chemistry I

Fall. Lec. 3. Lab. 3. Credit 4.
Prerequisite: CHEM 1120, MATH 1920, PHYS 2020 or PHYS 2110 (may be taken concurrently.) Introduction to modern, molecular approach to physical chemistry. A moderately rigorous introduction to quantum chemistry covering symmetry, bonding, molecular spectroscopy and statistical mechanics to set a stage for the molecular treatment of thermodynamics and kinetics in CHEM 3520. Lectures are reinforced by a systematic set of modern spectroscopy laboratory experiments.

CHEM 3520 - Physical Chemistry II

Spring. Lec. 3. Lab. 3. Credit 4.
Prerequisite: CHEM 3510. Kinetic theory of gases and Boltzmann distribution, Classical thermodynamics, adiabatic changes and Maxwell equations, heat capacity and equipartition theorem, thermodynamic and statistical entropy, chemical equilibrium, Electrochemistry, Phase transitions and thermodynamic aspects of phases, introduction to chemical kinetics and reaction dynamics. Lectures are reinforced by a systematic set of classical experiments in thermodynamics and kinetics.

CHEM 3990 - Special Problems in Chemical Education

Lab. 1. Credit 1.
Prerequisite: CHEM 1110, CHEM 1120, six additional hours of Chemistry and consent of a faculty research mentor and the departmental chairperson. Independent study of special topics in chemical education under the direction of a faculty mentor. Must be taken twice, preferably in consecutive semesters. Restricted to secondary education chemistry majors.

CHEM 4110 (5110) - Inorganic Chemistry

Spring. Lec. 3. Credit 3.
Prerequisite: CHEM 2010 and CHEM 3500 or CHEM 3510. Correlation of physical and chemical properties of inorganic compounds and atomic structure.

CHEM 4150 (5150) - Inorganic Chemistry Laboratory

Spring. Lab. 3. Credit 1.
Corequisite: CHEM 4110 (5110). Synthesis, isolation, and characterization of inorganic compounds, using conventional as well as microscale and inert gas techniques.

CHEM 4210 (5210) - Chemistry of Polymers

Fall. Lec. 3. Credit 3.

Prerequisite: CHEM 3020 and CHEM 3500 or CHEM 3510. Preparation, structure, and physical and chemical properties of organic polymers. Experimental determination of average molar mass and its correlation to macroscopic properties. Thermal and viscoelastic behavior.

CHEM 4310 (5310) - Nuclear Chemistry and Radiochemistry

Spring. Lec. 2. Lab. 3. Credit 3.

Prerequisite: CHEM 3500 or CHEM 3510 (may be taken concurrently.) Introduction to theory of nuclear stability and decay processes. The laboratory emphasizes the detection, safe handling, and use of radioisotopes in chemical investigations.

CHEM 4320 (5320) - Spectrometric Identification of Organic Compounds

Spring. Lec. 2. Lab. 3. Credit 3.

Prerequisite: CHEM 3020 and CHEM 3500 or CHEM 3510. The isolation and identification of organic compounds by both chemical and physical means with emphasis on spectroscopic methods.

CHEM 4410 (5410) - Forensic Chemistry

Lec. 3. Lab. 1. Credit 4.

Prerequisite: CHEM 1120, CHEM 3020 and CHEM 3410. This course will examine the application of chemical concepts and methods to the analysis of crime scene evidence.

CHEM 4500 - Nutritional Biochemistry

Spring. Lec. 3. Credit 3.

Prerequisite: CHEM 3005. Introduction to the chemistry of biological molecules and the metabolic pathways as related to nutrition and physiological function. Not for chemistry majors.

CHEM 4520 (5520) - Instrumental Analysis

Fall. Lec. 3. Lab. 3. Credit 4.

Prerequisite: CHEM 3410 and CHEM 3510. Theory and practice of atomic spectroscopy, chromatography, and electroanalysis; discussion of selected instrumental techniques for analysis of surfaces, molecules, and particles.

CHEM 4610 (5610) - General Biochemistry I

Fall, Spring. Lec. 3. Credit 3.

Prerequisite: CHEM 3010 and CHEM 3020, or consent

of instructor. Chemistry of amino acids, proteins, lipids, carbohydrates, membranes and nucleic acids. Includes study of pH, enzyme kinetics, three-dimensional structure and biochemical separation methods and analysis.

CHEM 4620 (5620) - General Biochemistry II

Spring. Lec. 3. Credit 3.

Prerequisite: CHEM 4610 (5610). Intermediary metabolism and its regulation, bioenergetics and photosynthesis, biosynthesis of proteins and nucleic acids.

CHEM 4650 (5650) - General Biochemistry Laboratory

Spring. Lab. 6. Credit 2.

Prerequisite: CHEM 4610 (5610) or CHEM 4300. Laboratory techniques associated with contemporary general biochemistry to include buffer preparation, pKa determination, amino acid analysis, protein expression, separation and purification techniques, protein determination, enzymology, equilibrium and binding constant determinations, and carbohydrate analysis. The CHEM 5650 student will engage in additional procedures in some of the experiments.

CHEM 4710 (5710) - Environmental Chemistry

Fall. Lec. 3. Credit 3.

Prerequisite: CHEM 3005 or CHEM 3010, and CHEM 3410 or CHEM 3500 or CHEM 3510 (courses from the latter group may be taken concurrently.) Basic concepts of environmental chemistry.

CHEM 4720 (5720) - Advanced Environmental Chemistry

Spring. Lec. 2. Lab. 3. Credit 3.

Prerequisite: CHEM 4710 (5710). Advanced topics within environmental chemistry including emphasis on organic, inorganic, and analytical environmental chemistry. Case studies and contemporary literature in the field will be discussed.

CHEM 4910 - Chemistry Seminar

Fall. Lec. 2. Credit 2.

Prerequisite: One year of Chemistry. Topics to be taught include the chemical literature, employment and interviewing, computer literacy, and the organization and oral presentation of current topics in Chemistry.

CHEM 4940 - Internship in Chemistry

Credit 6.

Prerequisite: 18 hours of chemistry, Junior or Senior standing and consent of the chair. Supervised chemical work experience in a private or public agency that is related to the student's career goals. A minimum equivalent to ten weeks of half-time employment is required. Cannot be used to replace core or required elective CHEM courses within the major requirements.

CHEM 4970 (5970) - Special Topics

Lec. 1-3. Lab. 0-3. Credit 1-4.

Prerequisite: Consent of instructor. Timely topics in chemistry. Course may be taken for credit more than once.

CHEM 4980 - Distinction in Chemistry Research

Lec. 0. Credit 1.

Dissemination of independent research conducted with a Chemistry faculty advisor through participation in meetings (national meetings, state meetings and/or TTU Student Research Day), departmental seminar, and mini-thesis.

CHEM 4991 - Undergraduate Research

Fall, Spring. Lab. 3. Credit 1.

Prerequisite: Consent of instructor and departmental chairperson. Study in chemical research; to provide experience in the methodology of experimental investigation. (Maximum credit toward degree is four hours.) May not be repeated to improve grade.

CHEM 4992 - Undergraduate Research

Fall, Spring. Lab. 6. Credit 2.

Prerequisite: Consent of instructor and departmental chairperson. Study in chemical research; to provide experience in the methodology of experimental investigation. (Maximum credit toward degree is four hours.) May not be repeated to improve grade.

CHEM 4993 - Undergraduate Research

Fall, Spring. Lab. 9. Credit 3.

Prerequisite: Consent of instructor and departmental chairperson. Study in chemical research; to provide experience in the methodology of experimental investigation. (Maximum credit toward degree is four hours.) May not be repeated to improve grade.

Child and Family Studies

CFS 1000 - Introduction to the Profession

Lec. 1. Credit 1.

Prerequisite: Human Ecology and Child and Family

Studies major and minor or consent of instructor. Introduction to college: the HEC/CFS majors and student opportunities. Review of the history, philosophy, trends, and professional publications and associations in HEC/CFS. Exploration of career opportunities.

CFS 1210 - Field Experiences: Child and Family Studies

Lab. 4. Credit 1.

Students participate in professional related activities via: diverse agency and educational settings through guided observations, interviews, and "hands-on" experiences; planned special activities; attendance at career-related events; and events of students' own choosing.

CFS 1300 - Introduction to the Family

Lec. 1. Credit 1.

Corequisite: CFS 1310. Fundamental concepts and trends related to current challenges of families, marriage, parenthood, and work.

CFS 1310 - Field Experiences: Family and Community

Lab. 4. Credit 1.

Corequisite: CFS 1300. Field experience in community agencies and organizations and family settings and their interrelationships.

CFS 2210 - Field Experience: Observation of Young Children

Lab. 8. Credit 1.

Learn and practice observational techniques, approaches and instruments appropriate for young children in various settings.

CFS 2400 - Children with Special Needs

Cross-listing: ECSP 2400

Lec. 3. Credit 3.

Knowledge of risk factors, developmental delay, and categories of disability. Understanding of special education and its emphasis on prevention, early intervention, and services in normal environments. Practicum embedded into course.

CFS 2410 - Practicum: Young Children with Special Needs

Cross-listing: ECSP 2410

Lab. 4. Credit 1.

Supervised participation in service delivery settings.

CFS 3600 - Family, Community & Professional Partnerships

Lec. 2. Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Study of the development of alliances among families, children's and families' advocates, and professionals. The development of collaboration and communication skills, including conferencing and interviewing skills. (Same as HEC 352: Parent Education, prior to Fall 1998.)

CFS 4000 - Seminar: Professional Development Issues

Lec. 2. Credit 2.

Study of professional and multicultural issues. Examination of relevant professional topics, including legal and behavior/group management issues. Continued development of communication skills, including problem-solving, and conflict resolution.

CFS 4890 - Seminar: Student Teaching/Internship Cross-listing: ECSP 4890

Lec. 3. Credit 3.

Examination of important professional topics, including a personal and professional profile, a portfolio, a resume, professional behavior, and professional organizations. Analysis of personal and professional resources.

CFS 4900 - Community Field Experience

Lab. 4. Credit 1.

Prerequisite: Senior Standing. Preparation for internship. Involvement with community agencies and programs serving children and families.

Civil and Environmental Engineering

CEE 1020 - Connections to Civil and Environmental Engineering

Rec. 2. Credit 1.

Prerequisite: Freshman Standing. Engages the student in meaningful academic and non-academic activities introducing students to the CEE department and the civil engineering profession. Emphasizes time management and study skills, department and university resources, faculty interaction, professional and student organizations, and the civil engineering profession.

CEE 2110 - Statics

Lec. 3. Credit 3.

Prerequisite: PHYS 2110 (PHYS 2110 may be taken concurrently); C or better in MATH 1920. Vector algebra, resultants, equilibrium, friction, centroids, moment of inertia, trusses, machines and frames, beam shear and moments.

(ENGR 2110, TTP Course)

CEE 3000 - Civil Engineering Graphics

Lab 4. Credit 2.

Prerequisite: Junior Standing. The course introduces students to the use of computer aided design and drafting software (CADD) and to instruct students in best practices for preparing Civil Engineering drawings.

CEE 3020 - Surveying

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MATH 2110. Introduction to the fundamental principles, instruments, and techniques associated with surveying for highway purposes.

CEE 3030 - Civil Engineering Materials

Lec. 2. Lab. 2. Credit 3.

Prerequisite: CEE 3110. Characteristics and uses of aggregates, Portland cement, concrete and bituminous materials for highways and other major engineering works.

CEE 3040 - Geotechnical Engineering Lab

Lab. 2. Credit 1.

Prerequisite: CEE 3030. Measurement of basic engineering properties of soils.

CEE 3100 - Computers in Civil Engineering

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ENGR 1120 and MATH 2110. Computer applications to solve civil engineering problems, algorithmic structuring, numerical methods, and error analysis.

CEE 3110 - Mechanics of Materials

Lec. 3. Credit 3.

Prerequisite: C or better in CEE 2110. Stress, strain, Hooke's law, extension, torsion, and bending; beam deflections, column buckling, and combined stresses.

CEE 3120 - Mechanics of Materials Laboratory

Lab. 2. Credit 1.

Prerequisite: CEE 3110. A series of experiments which demonstrate the theory of mechanics of materials and the most important characteristics of engineering materials.

CEE 3320 - Structural Mechanics

Lec. 2. Rec. 2. Credit 3.

Prerequisite: CEE 3110. Analysis of statically determinate and indeterminate structures; influence lines; and moving loads. Classical and computer methods.

CEE 3413 - Environmental Engineering

Lec. 3. Credit 3.

Prerequisite: CHEM 1110 and MATH 2110. Fundamentals of environmental engineering with applications in water quality, water and wastewater treatment, solid waste management, air pollution, and hazardous waste management.

CEE 3420 - Hydraulics

Lec. 3. Credit 3.

Prerequisite: ME 3720. Fundamental principles and design of water and wastewater supply, stormwater and sanitary sewer systems and their components, including pipes, pumps, storage facilities, detention basins, open-channels, and culverts.

CEE 3430 - Environmental Engineering Lab

Lab. 2. Credit 1.

Prerequisite or corequisite: CEE 3413. Laboratory experiments to illustrate the application of engineering fundamentals to environmental systems.

CEE 3610 - Transportation Engineering

Lec. 3. Credit 3.

Prerequisite: CEE 3020. Introduction to transportation engineering; planning, location, design, and operation of transportation facilities.

CEE 3710 - Principles of Engineering Economy

Cross-listing: (ENGR)

Lec. 2. Credit 2.

Prerequisite: MATH 1920. Concepts and techniques useful in the economic evaluation of engineering alternatives.

CEE 3720 - Engineering Statistics

Cross-listing: (ENGR)

Lec. 2. Credit 2.

Prerequisite: MATH 1920 and Junior Standing. Engineering applications of probability, hypothesis testing, and confidence intervals.

CEE 4130 (5130) - Matrix and Finite Element Methods

Lec. 3. Credit 3.

Prerequisite: CEE 3320 or ME 4640 (5640) and MATH 2010 or MATH 4510 (5510). Matrix formulations using flexibility and stiffness methods for structural analysis of

skeletal structures. Finite element formulations and applications.

CEE 4160 (5160) - Experimental Stress Analysis

Cross-listing: ME 4160 (5160)

Lec. 2. Lab. 2. Credit 3.

Prerequisite: CEE 3110 and MATH 2120. Introduction to theory of elasticity; photoelasticity; theory and application of strain gauges and rosettes; brittle coatings; holographic interferometry; and moiré analysis.

CEE 4190 (5190) - Advanced Mechanics of Materials

Cross-listing: ME 4190 (5190)

Lec. 3. Credit 3.

Prerequisite: CEE 3110, MATH 2120 or consent of instructor. Advanced topics, fracture mechanics, elastic support, non-circular shafts, curved beams, thick-walled cylinders, introduction to plates, and thin shells of revolution.

CEE 4310 - Structural Steel Design

Lec. 2. Rec. 2. Credit 3.

Prerequisite: CEE 3320. Design of members and structures in steel. Analysis and design of beams, tension members, compression members, members with combined stresses, and standard connections.

CEE 4320 - Reinforced Concrete Design

Lec. 2. Rec. 2. Credit 3.

Prerequisite: CEE 3320. Design of members and structures in concrete. Design of beams, slabs, columns, and footings.

CEE 4350 (5350) - Advanced Structural Design

Lec. 3. Credit 3.

Prerequisite: CEE 4310. Special topics in analysis and design of steel structures. Plastic design, composite design, plate girders, and special connections.

CEE 4360 (5360) - Advanced Topics in Structural Concrete Design

Lec. 3. Credit 3.

Prerequisite: CEE 4320. Special topics in the design of concrete structures. Combined footings, retaining walls, two-way slabs, and prestressed concrete.

CEE 4380 (5380) - Bridge Design

Lec. 3. Credit 3.

Prerequisite: CEE 4310. Design of structural steel and reinforced concrete bridges.

CEE 4410 (5410) - Solid and Hazardous Waste Management

Lec. 3. Credit 3.

Prerequisite: CEE 3413 or consent of instructor. The collection and disposal of solid wastes. Treatment and disposal technologies of hazardous wastes. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

CEE 4420 (5420) - Engineering Hydrology

Lec. 3. Credit 3.

Prerequisite: CEE 3420 or consent of instructor. Fundamental processes in the hydrologic cycle including precipitation, infiltration, and runoff. Quantitative approaches for engineering hydrology to estimate flows for a variety of design problems.

CEE 4430 (5430) - Water and Wastewater Engineering

Lec. 3. Credit 3.

Prerequisite: CHEM 1120 and CEE 3413 or consent of instructor. Analytical methods for use in water quality management of streams, lakes, reservoirs, and groundwater systems. Project design of water and wastewater treatment plants. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

CEE 4440 (5440) - Water Resources Engineering

Lec. 3. Credit 3.

Prerequisite: CEE 3420 or consent of instructor. Problems related to the planning and design of systems to manage water resources for flood-damage reduction, hydropower, and river navigation.

CEE 4450 (5450) - Water Quality Modeling

Lec. 3. Credit 3.

Prerequisite: CHEM 1120 and CEE 3413 or consent of instructor. Mathematical modeling of chemical and biological processes occurring in streams, lakes, and estuaries, emphasizing oxygen demand and nutrient processes. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

CEE 4500 (5500) - Construction Engineering Management

Lec. 3. Credit 3.

Prerequisite: Within two semesters of graduation. The design and management of the construction phase of a project: scheduling, estimating, contracts, laws, financing, and safety.

CEE 4510 - Engineering Management

Cross-listing: (ENGR 4510)

Lec. 3. Credit 3.

Prerequisite: Senior Standing in an Engineering discipline. Management theory applied to engineering and technical organizations. Topics include management functions in an engineering context; engineering techniques and tools for management; project management; management/leadership of technical people and teams; and contemporary engineering management topics, e.g., rapid technological change and globalization.

CEE 4600 (5600) - Civil Engineering Materials II

Lec. 2. Lab. 2. Credit 3.

Prerequisite: CEE 3030. Design and testing of high-strength PCC, self-consolidating PCC, high volume fly ash PCC and pervious PCC. Controlled low-strength materials. Concrete formwork design. Masonry materials evaluation. Aggregate production and improvement.

CEE 4610 (5610) - Pavement Design

Lec. 3. Credit 3.

Prerequisite: CEE 3610. Structural design of flexible and rigid pavements. Pavement rehabilitation. Properties of subgrades, base courses, and paving materials.

CEE 4630 (5630) - Traffic Engineering

Lec. 3. Credit 3.

Prerequisite: CEE 3610. Techniques of traffic engineering measurements, investigations, and data analysis; design, application, and operation of traffic control systems and devices.

CEE 4640 (5640) - Highway Engineering

Lec. 3. Credit 3.

Prerequisite: CEE 3610. Theory and practice of highway geometric design, highway plans, construction practices, and computer applications to highway design.

CEE 4660 (5660) - Transportation Planning

Lec. 3. Credit 3.

Prerequisite: CEE 3610. System planning and evaluation. Characteristics, impacts, and costs. User patterns. Alternative analysis.

CEE 4700 (5700) - Masonry Design

Lec. 2. Rec. 2. Credit 3.

Prerequisite: CEE 3030 and CEE 4320 or consent of instructor. Masonry materials and construction. Design

of masonry beams, walls, and columns. Seismic design of masonry structures.

CEE 4800 - Geotechnical Engineering

Lec. 3. Credit 3.

Prerequisite: CEE 3030 and GEOL 3210. (CEE 3030 and GEOL 3210 may be taken concurrently.) Soil physical properties, classification, permeability and seepage, consolidation, design, and analysis of foundations.

CEE 4810 (5810) - Foundation Engineering

Lec. 3. Credit 3.

Prerequisite: CEE 4800. Soil mechanics (emphasis on stress and shear strength), bearing capacity, magnitude and time-rate of consolidation, geotechnical design of shallow and deep foundations, lateral earth pressure, and geotechnical aspects of retaining wall design.

CEE 4850 - Forensic Engineering

Lec. 3. Credit 3.

Prerequisite: CEE 4800 (CEE 4800 may be taken concurrently) and CEE 4310 or CEE 4320. Forensic case studies related to civil engineering.

CEE 4920 - Professionalism and Ethics

Lec. 1. Credit 1.

Prerequisite: Senior Standing. A discussion of the ethical, social, and economic considerations in engineering practice, and professional and technical societies.

CEE 4930 (5930) - Noise Control

Cross-listing: ME 4930 (5930)

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MATH 2120 and PHYS 2110. Identification and description of noise sources and noise radiation, methods of noise measurements and criteria for noise levels, principles, and techniques of noise control.

CEE 4940 - Fundamentals of Civil Engineering

Rec. 2. Credit 0.

Prerequisite: CEE 3030, CEE 3413, CEE 3420, CEE 3610, CEE 3710, CEE 4310, CEE 4320, CEE 4800, and CEE 4920 (CEE 3030, CEE 3420, CEE 3710, CEE 4310, CEE 4320, CEE 4800 and CEE 4920 may be taken concurrently). Review fundamentals in preparation for fundamentals-of-engineering (FE) test.

CEE 4950 - Senior Design Project

Lab. 6. Credit 3.

Prerequisite: Consent of instructor. Comprehensive design project of civil engineering projects using a team approach.

CEE 4990 (5990) - Special Problems

Credit 1-4 per semester. Maximum 18.

Prerequisite: Approval of departmental chairperson. Current topics in the student's area of interest. May not be repeated to improve a grade.

College of Arts and Sciences

CAS 4910 - Internship in Technology and Community Development I

Lab. 2. Credit 1.

Prerequisite: Junior Standing or above. From media tutorials (CD-ROM, videotape, etc.), personal tutorials, and workshops, the student learns at least three state-of-the-art applications of current computer technologies to community development projects. Student must sign a written intention to complete CAS 4910, CAS 4920, and CAS 4930. A-F grading.

CAS 4920 - Internship in Technology and Community Development II

Lab. 4. Credit 2.

Prerequisite: CAS 4910 or consent of the supervisor. The student collaborates with others in a workshop setting to practice at least three state-of-the-art applications of current computer technologies to community development projects. A-F grading.

CAS 4930 - Internship in Technology and Community Development III

Lab. 4-6. Credit 2-3.

Prerequisite: CAS 4910 and CAS 4920 or consent of the supervisor. The student completes a community development project, or a substantial, definable part of a project, based on at least three state-of-the-art applications of current computer technologies. A-F grading.

MSCI 1020 - First-Year Connections

Rec. 2. Credit 1.

This course is intended as a bridge course for those students entering TTU from high school and majoring in mathematics and the various science disciplines within the College of Arts and Sciences. The course is designed to strengthen the student's connection to TTU, enhance skills needed for academic success, and foster appreciation for the multidisciplinary nature of addressing real-world problems. This course

emphasizes critical thinking in both academic and non-academic contexts by including significant elements of group work in problem-based learning activities.

Communication

COMM 1020 - Foundations of Communication

Lec. 3. Credit 3
Role of communication in society and education. Overview of topics germane to understanding effective communication.

COMM 2025 - Fundamentals of Communication

Lec. 3. Credit 3.
Introduction to the communication process, interpersonal communication, group discussion, and public speaking. Students are required to prepare and deliver speeches.

◆ Meets Tennessee Technological University general education requirement (Communication/Oral Presentation). (SPCH 1010, TTP Course)

COMM 2075 - Organizational Communication

Lec. 3. Credit 3.
This course introduces students to the theories and practices of communication within the work place. It covers various communication settings including interviewing, presentations, group work, meetings, and email.

COMM 2090 - Interpersonal Communication

Lec. 3. Credit 3.
Prerequisite: COMM 2025. This course examines basic verbal and nonverbal elements affecting communication between individuals in family, peer group, and work contexts. Students are presented with the principles, concepts, attitudes, skills, and techniques necessary for successful interaction in one-to-one settings. The main emphasis is placed on effective management of personal and professional relationships.

COMM 2800 - Interviewing

Lec. 3. Credit 3.
This course introduces students to the interpersonal communication aspects of the interviewing process. Students will learn the various types of interviews and their purpose. Students will plan and prepare interviews from the roles of the interviewee and interviewer.

COMM 3000 - Computer Mediated Communication

Lec. 3. Credit 3.

An examination of human communication achieved through computer technology. Analysis of how the use of electronic devices such as email, instant messaging, cell phones, internet, blogs, video games, etc. affects interpersonal and group communication.

COMM 3030 - Principles of Event Planning

Lec. 3. Credit 3.
This course introduces students to the theory and practices of event planning. This course will focus on the beginning preparation and planning for an event, the what and why behind the scenes, and how-to effective planning occurs in this growing field.

COMM 3080 - Communication and Effective Team Work

Lec. 3. Credit 3.
This introductory course offers students a chance to learn about effective group processes for decision-making and problem solving. Students will learn new and pertinent information about effectively communicating in teams, as well as practice these skills through team assignments throughout the semester.

COMM 3100 - Communication Theory

Lec. 3. Credit 3.
Prerequisite: COMM 2025, COMM 2090, JOUR 2200, Junior Status or consent of instructor. Examination and application of the major theories of Communication processes, including mass communication, intrapersonal, interpersonal, intercultural, rhetorical, organizational, and other approaches to the study of Communication.

COMM 3120 - Visual Communication/Rhetoric

Lec. 3. Credit 3.
Prerequisite: Upper-division status or by permission of the instructor. The course introduces basic principles of critical perception and interpretation of the processes of visual communication/rhetoric in the mass media, fine arts, films, and photography.

COMM 3130 - Speech Activities

Lec. 3. Credit 3.
Prerequisite: Consent of instructor. For students interested in all forms of public speaking and contest work.

COMM 3200 - Research Methods in Communication

Lec. 3. Credit 3.
Prerequisite: COMM 2025, COMM 2090, JOUR 2200,

COMM 3100 or consent of instructor. An introduction to the diverse methods of research employed in the study of Communication and how they connect to major theories in Communication. This course focuses on quantitative and qualitative methods of research in Communication, including content analysis, survey research, discourse analysis, rhetorical analyses, observational research, and interviewing.

COMM 3400 - Nonverbal Communication

Lec. 3. Credit 3.

Prerequisite or corequisite: COMM 2025. This course will examine the theory, research, and application of nonverbal communication as it is used in personal and professional contexts. The usage, effects, and application of nonverbal communication in interpersonal relationships, the workplace, the classroom, the courtroom, and intercultural relationships will be examined.

COMM 3620 - Intercultural Communication

Lec. 3. Credit 3.

Theoretical and practical ideas to prepare students for cross-cultural interactions. Emphasis on interpersonal, face-to-face intercultural communication in various domestic and international settings.

COMM 3630 - Discussion and Parliamentary Procedure

Lec. 3. Credit 3.

Conduct of a meeting: panels, symposiums, and forums. Organization, planning, and participation in group discussion and conference.

COMM 4000 (5000) - Introduction to Communication Disorders

Cross-listing: SPED 4000 (5000)

Spring (O). Lec. 3. Credit 3.

Principles of and therapeutic approaches to speech, language, and hearing disorders.

(O) and (E) Denote Odd and Even Years Respectively

COMM 4030 - Event Management and Promotion

Lec. 3. Credit 3.

Prerequisite: COMM 3030 or permission of the instructor. This course will provide students with the opportunity to implement skills learned to manage and promote an actual event, either in pairs or small groups.

COMM 4150 (5150) - Speech and Language Acquisition and Development

Cross-listing: SPED 4150 (5150)

Spring (E). Lec. 3. Credit 3.

Normal speech/language development, anatomy of speech structures, distinctive features and implications of process and analysis systems.

(O) and (E) Denote Odd and Even Years Respectively

COMM 4420 - Advanced Organizational Communication

Lec. 3. Credit 3.

Prerequisite: Upper-division status in communication or by permission of the instructor. Approaches to the understanding of communicative cultures in modern organizations and their operant principles.

COMM 4430 (5430) - Advanced Interpersonal Communication

Lec. 3. Credit 3.

Prerequisite: COMM 2090 or consent of instructor. Communications theory applied to informal and face-to-face situations.

COMM 4440 - Semiotics

Lec. 3. Credit 3.

Studies in the philosophy and principles of code systems and language theory, including a range of code systems from simple to complex.

COMM 4540 - Historic American Public Address

Lec. 3. Credit 3.

This course is a critical survey of historic American public discourse from the founding of the nation to the end of WWII. Students will analyze historically significant speeches, their rhetorical design, and their influence on public opinion and policy.

COMM 4550 - Contemporary American Public Address

Lec. 3. Credit 3.

This course covers public oratory from WWII to the present. Students will read some major speeches that marked important social and political events and will examine the speeches' influence on public belief and action.

COMM 4601 - Special Topics in Speech Communication

Lec. 3. Credit 1, 2, 3.

Prerequisite: Upper-division status; may be repeated to a maximum nine hours. Presentation of directed,

individual research in selected topics in speech communication beyond regular course offerings. Topic will be specified at time of offering.

COMM 4602 - Special Topics in Speech Communication

Lec. 3. Credit 1, 2, 3.

Prerequisite: Upper-division status; may be repeated to a maximum nine hours. Presentation of directed, individual research in selected topics in speech communication beyond regular course offerings. Topic will be specified at time of offering.

COMM 4603 - Special Topics in Speech Communication

Lec. 3. Credit 1, 2, 3.

Prerequisite: Upper-division status; may be repeated to a maximum nine hours. Presentation of directed, individual research in selected topics in speech communication beyond regular course offerings. Topic will be specified at time of offering.

COMM 4620 (5620) - Advanced Public Speaking

Fall (E). Lec. 3. Credit 3.

Prerequisite: COMM 2025. Advanced oral communications as practiced from the platform, with emphasis on special types of speaking.

(O) and (E) Denote Odd and Even Years Respectively

COMM 4630 (5630) - Persuasion

Lec. 3. Credit 3.

Prerequisite: COMM 2025 or consent of instructor. Promotes intellectual understanding and critical application of how individuals and groups influence the attitudes, beliefs, and behaviors of others.

COMM 4850 - Internship

Credit 3.

Prerequisite: COMM 2025. A supervised experience in a professional or career setting including: Communication Pedagogy, Debate, Interpersonal, Organizational, Public Relations, and Public Speaking. Students may not take more than 6 hours total of the Internship toward degree requirements.

COMM 4851 - Internship

Credit 6.

Prerequisite: COMM 2025. A supervised experience in a professional or career setting including: Communication Pedagogy, Debate, Interpersonal, Organizational, Public

Relations, and Public Speaking. Students may not take more than 6 hours total of the Internship toward degree requirements.

COMM 4900 - Independent Study in Communication

Credit 3.

Prerequisite: COMM 2025. Directed readings and research for students desiring to work on topics of individual interest beyond the course offerings. Students may not take more than 6 hours total of the Independent Study toward degree requirements.

COMM 4901 - Independent Study in Communication

Credit 6.

Prerequisite: COMM 2025. Directed readings and research for students desiring to work on topics of individual interest beyond the course offerings. Students may not take more than 6 hours total of the Independent Study toward degree requirements.

Computer Science

CSC 1200 - Principles of Computing

Lec. 3. Credit 3.

Prerequisite: ACT Math score of 25 or higher, MATH 1710, MATH 1720, MATH 1730, or MATH 1910. This course introduces the field of computer science. Topics include computing as a creative activity, abstraction, data and information, algorithms, programming, the Internet, and global impacts of computing. Prerequisite course may be taken concurrently.

CSC 1300 - Introduction to Problem Solving and Computer Programming

Lec. 3. Lab. 2. Credit 4.

Prerequisite: CSC 1200 or MATH 1845 or MATH 1910. MATH 1845 or MATH 1910 may be taken concurrently. Digital computers; problem solving and algorithm development; programming is introduced using a procedural approach, but classes and object-orientation are introduced; design and testing are emphasized. Students complete a series of weekly laboratory exercises for developing proficiency in problem solving and computer programming.

CSC 1310 - Data Structures and Algorithms

Lec. 3. Lab. 2. Credit 4.

Prerequisite: C or better in CSC 1300; or C or better in CSC 2100 and CSC 2101. Abstract data types and fundamental data structures including stacks, queues, and trees; algorithms to search, sort, and manipulate data using such structures; and introduction to runtime

analysis. Students complete a series of weekly laboratory exercises for developing proficiency in implementing and utilizing data structures.

(CISP 1020, TTP Course)

CSC 2310 - Object-Oriented Programming and Design

Lec. 3. Lab. 2. Credit 4.

Prerequisite: C or better in CSC 1310; or C or better in CSC 2110 and CSC 2111. Theory and practice of object-oriented programming and design. Encapsulation, inheritance, dynamic binding, and polymorphism; and introduction to UML and design patterns. Students complete a series of weekly laboratory exercises for developing proficiency in object-oriented programming and design.

CSC 2400 - Design of Algorithms

Lec. 3. Credit 3.

Prerequisite: MATH 1920; and C or better CSC 1310 or both CSC 2110 and CSC 2111. Advanced data structures and applications, problem solving strategies, heuristics, and complexity of algorithms. MATH 1920 may be taken concurrently.

CSC 2500 - Unix Lab

Lab. 2. Credit 1.

Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111. Introduction to UNIX operating systems, the facilities, tools, and development procedures in an environment designed for systems programming. Prerequisites may be taken concurrently.

CSC 2560 - Networks for Information Technologists

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 2500 or concurrent enrollment in CSC 2500. Course covers theoretical and practical aspects of computer networks from an information technology perspective.

CSC 2700 - Discrete Structures for Computer Science

Lec. 3. Credit 3.

Prerequisite: MATH 1910. Applications of discrete mathematics to computer science, sets and boolean algebra, relations, and graphs, with applications to computer logic and data structures.

CSC 2901 - Special Topics

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Timely topics in Computer Science. Individual courses may not be repeated either for credit or for improvement of credit.

CSC 2902 - Special Topics

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Timely topics in Computer Science. Individual courses may not be repeated either for credit or for improvement of credit.

CSC 2903 - Special Topics

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Timely topics in Computer Science. Individual courses may not be repeated either for credit or for improvement of credit.

CSC 3020 - Numerical Methods

Cross-listing: (ENGR 3020)

Lec. 3. Credit 3.

Prerequisite: MATH 1920 and C or better in CSC 1310 or CSC 2100 or ENGR 1120. Linear and non-linear equations; convergence and error analysis; quadrature; interpolation; numerical differentiation and integration; first order differential equations; boundary value problems; and approximation of functions.

CSC 3030 - Practical and Professional Issues in Computer Science

Lec. 1. Lab. 1. Credit 1.

Prerequisite: Junior Standing, COMM 2025 or PC 2500, and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Social, ethical, and career aspects of computing. Course includes written, oral, and audio-visual communication in computer science.

CSC 3040 - Professionalism, Communication and Research in Computing

Lec. 3. Credit 3.

Prerequisite: Junior Standing, COMM 2025 or PC 2500, and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Social, ethical, and career aspects of computing. Written, oral, and audio-visual communication in computer science; presentation techniques, report preparation, and technical correspondence. Introduction to research in computing.

CSC 3100 - Web Programming

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111. Development of web applications with client and server-side technologies.

CSC 3220 - Fundamentals of Data Science

Lec. 3. Credit 3.

Prerequisite: MATH 2010, MATH 3070 or MATH 3470 or MATH 4470 (5470), CSC 3300, and C or better in CSC 1310 or both of CSC 2110 and CSC 2111. CSC 3300 may be taken concurrently. Introduction to the tools and techniques for developing data science applications and to the basics of Data Science including programming for data management, data manipulation, data analytics, and data visualization. Students will be introduced to various machine learning algorithms, and learn to formulate context-relevant questions and hypothesis to drive scientific research and understand statistical inference. Students will be introduced to Python and R, and will be expected to create tools using these programming languages. The foundation is laid for big data applications ranging from fraud detection to healthcare informatics.

CSC 3230 - Healthcare Data Analytics

Lec. 3. Credit 3.

Prerequisite: MATH 3070 or MATH 3470, and C or better in CSC 2400. Introduction to Healthcare Data Analytics. High level topics include healthcare data and data sources (including both electronic health records and genomic data), techniques for Healthcare Data Analytics, applications of healthcare analytics, integration of analytics applications into clinical workflow, evaluation of analytics applications, and legal and ethical issues in Healthcare Data Analytics.

CSC 3300 - Database Management Systems

Lec. 3. Credit 3.

Prerequisite: Junior Standing; and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Organization and management of large data files; data definition; database models; query languages; crash recovery; concurrency control; and case studies.

CSC 3340 - Deterministic Computer Models

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111; and MATH 2010. Formulation and application of the models of linear, non-linear, integer, and dynamic programming including computer solutions of the algorithms.

CSC 3350 - Probabilistic Computer Models

Lec. 3 Credit 3.

Prerequisite: MATH 3470. Stochastic models of queuing, game, inventory, and decision theory with computer solutions in algorithmic form and by digital simulation.

CSC 3410 - Computer Organization and Assembly Language Programming

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111. Computer organization and architecture; machine language; and assembly language programming techniques.

CSC 3710 - Foundations of Computer Science

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 1610 or CSC 2700; and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Application of discrete structures to model computational processes; techniques for analysis of algorithms; and automata and concepts of language theory. CSC 1310 or both of CSC 2110 and 2111 may be taken concurrently.

CSC 4010 (5010) - Programming Languages

Lec. 3. Credit 3.

Prerequisite: CSC 3410 and either CSC 2710 or CSC 3710. Concepts distinguishing modern programming languages with emphasis on language design, implementation, and run-time behavior.

CSC 4020 (5020) - Compiler Construction

Lec. 3. Credit 3.

Prerequisite: CSC 3410 and either CSC 2710 or CSC 3710. Programming language translator design with emphasis on design concepts, parsing, code generation, tools, and code improvement; and construction of a small compiler.

CSC 4040 - Undergraduate Computing Research Experience

Credit 3.

Prerequisite: C or better in CSC 3040 and consent of instructor. This course combines instruction on how to perform computing research with a faculty-mentored research project.

CSC 4100 (5100) - Operating Systems

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 1310 or both CSC 2110 and CSC 2111; and CSC 3410 or ECE 3130. A historical perspective of operating systems; overview of modern systems; processor, storage, and process management; virtual memory; deadlocks; concurrent processing and programming; protection; and case studies.

CSC 4200 (5200) - Computer Networks

Lec. 3. Credit 3.

Prerequisite: CSC 2400. Data communications and computer networks; network models and protocols; local area networks; and data security.

CSC 4220 - Data Mining and Machine Learning

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 2400 and CSC 3220. Introduction to a solid grounding in machine learning concepts as well as practical advice on applying machine learning tools and techniques in real-world data mining situations, including preparing inputs, interpreting outputs, evaluating results, and the algorithmic methods at the heart of successful data mining. Students will also be introduced to the latest advances in the field, including data transformations, ensemble learning, massive data sets, multi-instance learning, with an application towards the leading edge of contemporary research.

CSC 4240 (5240) - Artificial Intelligence

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 2400. A unified survey of AI methods and applications; search and problem solving; knowledge representation; methods of reasoning, planning and uncertainty; learning, perception and communication; and rational agents.

CSC 4320 (5320) - Computer Architecture

Lec. 3. Credit 3.

Prerequisite: CSC 3410 or equivalent. Computer Systems, the CPU, the control unit, microprogramming, parallel organization, and RISC architectures.

CSC 4400 (5400) - Analysis of Algorithms

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 2400. Analysis techniques; search, traversal, string, and graph algorithms; and NP-hard and NP-complete problems.

CSC 4450 (5450) - Introduction to Automata Theory and Computation

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 3710, CSC 2400 recommended. Finite automata; regular sets; context-free languages, pushdown automata; Turing machines; recursive languages; computability; and computational complexity.

CSC 4570 (5570) - IT Security

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 2500, and in either CSC 2560 or CSC 4200 (5200). This course covers the fundamentals of computer security needed for IT professionals. It is an overview of various technical and administrative aspects of Information Security. It introduces students to assets in typical IT infrastructure, potential threats to assets, common associated vulnerabilities, protection of assets, and response to security incidents.

CSC 4575 (5575) - Information Assurance and Cryptography

Lec. 3. Credit 3.

Prerequisite: Junior Standing and C or better in CSC 1310 or both CSC 2110 and CSC 2111. Course introduces students to the fundamentals of information assurance and cryptographic techniques along with their application to the prevention, detection, and mitigation of cyber threats.

CSC 4580 - Software Reverse Engineering

Lec. 3. Credit 3.

Prerequisite: CSC 2400. Basic concepts of reverse engineering and general techniques used for reverse engineering. Reverse engineering applied to basic static and dynamic analysis of malware executables. Study of malware behavior, techniques that malware uses to thwart detection and analysis, and hands-on exercises using malware analysis tools and best practices.

CSC 4610 - Software Engineering I

Lec. 2. Lab. 2. Credit 3.

Prerequisite: CSC 2120 or CSC 2310, CSC 2400, CSC 3030 or CSC 3040, and CSC 3300, and Senior Standing. Course covers process models, agile methods, requirement analysis, design, testing, usability, configuration management and project management.

CSC 4620 - Software Engineering II

Lec. 2. Lab. 2. Credit 3.

Prerequisite: C or better in CSC 4610. Course covers advanced agile methods, coding, advanced testing concepts, deployment and maintenance.

CSC 4710 (5710) - Design and Development of Human and Web Interfaces

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 1310 or both CSC 2110, CSC 2111, and C or better in either CSC 3030 or CSC 3040. A course in human-computer interaction,

design and use interface development. It will expose students to tools, techniques, and ideas for designing effective human computer interfaces and discuss practical and legal aspects of accessibility.

CSC 4750 (5750) - Computer Graphics

Lec. 3. Credit 3.

Prerequisite: MATH 2010 and C or better in CSC 2400.

Interactive graphical techniques including three-dimensional transformations, hidden surface removal, texture mapping, and shading.

CSC 4760 (5760) - Parallel Programming

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 2400 and CSC 2500.

Foundations of parallel computing including the parallel computer architectures, principles of parallel algorithm design, OpenMP and MPI programming models for shared- and distributed-memory systems, along with numerical and non-numerical algorithms for parallel systems.

CSC 4770 - Distributed and Cloud Computing

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 4760 (5760). This course will cover the concepts in distributed systems including distributed computing, networking, operating systems, cloud, and programming languages.

Furthermore, it will examine current applied topics in distributed systems.

CSC 4801 (5801) - Directed Readings in Computer Science

Credit 1, 2, 3.

Prerequisite: Consent of instructor. This course provides for individual study under the direction of a faculty member in developing areas of Computer Science.

CSC 4802 (5802) - Directed Readings in Computer Science

Credit 1, 2, 3.

Prerequisite: Consent of instructor. This course provides for individual study under the direction of a faculty member in developing areas of Computer Science.

CSC 4803 (5803) - Directed Readings in Computer Science

Credit 1, 2, 3.

Prerequisite: Consent of instructor. This course provides for individual study under the direction of a faculty member in developing areas of Computer Science.

CSC 4901 (5901) - Special Topics

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Timely topics in Computer Science. May be repeated for credit if the topic is different.

CSC 4902 (5902) - Special Topics

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Timely topics in Computer Science. May be repeated for credit if the topic is different.

CSC 4903 (5903) - Special Topics

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Timely topics in Computer Science. May be repeated for credit if the topic is different.

CSC 4990 - Computer Science Internship

Credit 3 or 6.

Prerequisite: Department approval, C or better in CSC 3030, CSC 3550, and CSC 3300. Part-time employment in a professional or institutional situation related to the student's area of concentration in Computer Science. This course may be taken as two 3-hour courses or one 6-hour course. The 6-hour option will be approved in only very limited circumstances.

Creative Inquiry

CISE 4000 - Creative Inquiry Summer Experience

Credit 0.

Faculty mentor supervised creative inquiry experience during the summer terms. A maximum equivalent of ten weeks of part-time employment is possible. Zero-credit class.

Criminal Justice

CJ 2660 - Criminology

Cross-listing: SOC 2660

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing. Crime, the criminal and society's responses to the behavior.

CJ 2700 - Police and Society

Lec. 3. Credit 3.

Introduction to contemporary police organization and operations.

(CRMJ 1010, TTP Course)

CJ 2850 - Criminal Law and Procedure

Lec. 3. Credit 3.
Substantive criminal law and the rights of defendants to criminal charges.

(CRMJ 1020, TTP Course)

CJ 3000 - Rules of Evidence

Lec. 3. Credit 3.
Prerequisite: CJ 2850. Rules and exceptions governing the admission and exclusion of evidence including such issues as relevancy, presumptions, and burden of proof.

CJ 3500 - Wildlife Law Enforcement

Cross-listing: WFS 3500
Lec. 3. Credit 3.
State wildlife laws and practices used in their enforcement. Enrollment primarily restricted to WFS majors.

CJ 3610 - Advanced Criminal Procedure

Lec. 3. Credit 3.
Prerequisite: Junior Standing and SOC 1010 or CJ 2660, SOC 2660. Administration of the criminal process with particular attention to recent U.S. Supreme Court decisions regarding the Fourth, Fifth, and Sixth Amendments.

CJ 3620 - Victimology

Cross-listing: (SOC 3620)
Lec. Credit 3.
Prerequisite: SOC 1010 or CJ 2660. Students must be majoring in SOC, SOC/CJ/, or SOC/SW. Non-majors may be admitted by consent of instructor. This course provides an in-depth analysis of the victims of criminal activity including various challenges victims face as they seek justice through the criminal justice system; risk factors and probability of experiencing crime; and, specific theoretical perspectives that center on the victims of crime. Topics such as restorative justice and victim blaming are also explored.

CJ 3640 - Cybercrime

Cross-listing: SOC 3640.
Lec. 3. Credit 3.
Prerequisite: SOC 1010 or CJ 2660 or consent of the instructor. This course provides a broad introduction into the world of cybercrime. Cybercrime includes various forms of criminal activity and is broadly defined as the destruction, theft, or unauthorized or illegal use, modification, or copying of information, programs, services, equipment, or communication networks.

CJ 3650 - Youth and Society

Cross-listing: SOC 3650
Lec. 3. Credit 3.
Prerequisite: Sophomore Standing and SOC 1010.
Causes of juvenile misconduct, possible responses to the problem, and the system of juvenile justice.

CJ 3911 - Introduction to Crime Analysis

Cross-listing: (SOC)
Lec. 3. Credit 3.
Prerequisite: SOC 1010 and SOC 2660. Students must be majoring in SOC, SOC/CJ, or SOC/SW. Non-majors may be admitted by consent of instructor. This course provides students with instruction in the use of Microsoft Excel with applications for crime analysis.

CJ 4010 (5010) - Organized Crime

Cross-listing: SOC 4010 (5010)
Lec. 3. Credit 3.
Prerequisite: Sophomore Standing and SOC 1010 or CJ 2660 or SOC 2660. Organized crime in America as a product of legal, historical, cultural, and economic forces.

CJ 4040 (5040) - Law and Culture

Cross-listing: ANTH 4040 (5040), SOC 4040 (5040)
Lec. 3. Credit 3.
Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. A comparative cross-cultural analysis of primitive, traditional, and modern attitudes toward law, social control, punishment, and individual responsibility.

CJ 4050 - Crime and Media

Cross-listing: SOC
Lec. 3. Credit 3.
Prerequisite: SOC 1010 or SOC 2660/CJ 2660 or consent of the instructor. An analysis of crimes, criminals, and punishment as they appear in American popular culture and various media.

CJ 4100 (5100) - Probation and Parole

Cross-listing: SW 4100 (5100)
Lec. 3. Credit 3.
Prerequisite: Sophomore Standing and SOC 1010 or CJ 2660 or SOC 2660 or SW 1800. Probation and parole services with special attention to current practices and issues.

CJ 4120 (5120) - Case Management

Cross-listing: SW 4120 (5120)
Lec. 3. Credit 3.
Prerequisite: Sophomore Standing and SOC 1010 or CJ 2660 or SOC 2660 or SW 1800. Individual and group methods used in counseling and treating offenders in both the institutional and community setting.

CJ 4250 (5250) - Drugs and Behavioral Pharmacology

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing and SOC 1010 or CJ 2660 or SOC 2660. Relationships between drugs or drug groupings and human behavior, including toxicity, behavioral symptoms, and historical aspects of drug abuse.

CJ 4350 - White Collar Crime

Cross-listing: SOC 4350

Lec. 3. Credit 3.

Prerequisite: SOC 1010, or SOC 2660, or consent of the instructor. Criminological and sociological examination of offenders and victims of crimes in the world of business and government committed in the course of legitimate occupations.

CJ 4515 - Sexual Offenses and Offenders

Cross-listing: (SOC 4515)

Lec. 3. Credit 3.

Prerequisite: SOC 1010. This course provides a broad introduction into the world of sexual offenses. Accordingly, this course will provide information on survivors of these crimes, perpetrators, as well as relevant sociological factors. An emphasis will be placed on understanding the perpetrator specifically.

CJ 4520 - Patterns of Domestic Violence

Cross-listing: (SOC 4520)

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or CJ 2660 or consent of instructor. This course investigates all forms of domestic violence from a sociological perspective including theoretical explanations, prevalence, risk factors, dynamics of prevention, and intervention.

CJ 4530 - Sociology of Murder

Cross-listing: (SOC 4530)

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or CJ 2660 or consent of instructor. This course provides an analytical study of murder and violence in the United States. As such, course topics include: different types of homicide, offender characteristics, etiological considerations of becoming an offender or victim, the role of social profiling in the investigation of various types of murder, theoretical approaches to the study of murder, and patterns and sources of violence. Considering the grisly topic, students that are distributed by particularly heinous crimes should avoid enrolling into this course.

CJ 4540 - Women and Crime

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or CJ 2660. Students must be majoring in SOC, SOC/CJ, or SOC/SW. Non-majors

may be admitted by consent of instructor. This course provides an in-depth analysis on women's involvement in both crime enforcement and crime perpetration. The course examines how societal gender norms and concepts such as "femininity" impact women as law enforcers, perpetrators, and victims of crime.

CJ 4660 (5660) - Corrections

Cross-listing: SOC 4660 (5660)

Spring. (E). Lec. 3. Credit 3.

Prerequisite: Sophomore Standing and SOC 1010 or CJ 2660 or SOC 2660 or SW 1800. Correctional services, practices, and issues with particular attention to the maximum-security adult institution.

(O) and (E) Denote Odd and Even Years Respectively

CJ 4700 (5700) - Independent Study

Credit 1-3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of criminology or criminal justice where there is no appropriate course. May be taken twice, provided that the topic is different.

CJ 4900 (5900) - Internship in Criminal Justice

Cross-listing: SOC 4900 (5900), SW 4900 (5900)

Credit 3.

Prerequisite: Nine hours of Criminal Justice. See instructor prior to enrolling. Students are placed with and work in a public or private agency which is compatible with their interests. (May be taken once for upper division credit to fulfill major or minor requirements and a second time as a general elective.)

CJ 4911 - Geographic Information Applications in the Social Sciences

Cross-listing: (SOC 4911)

Lec. 3. Credit 3.

Prerequisite: SOC 1010. This course provides a broad introduction into the world of geographic information systems (GIS) and their applicability to the social sciences--particularly criminal justice. Students are required to complete a major research project using GIS applications and to present the results.

CJ 4915 - Internship

Cross-listing: (SOC 4915 (5915), SW 4915)

Credit 6.

Prerequisite: Nine hours of sociology. Six-hour internships are only available for internships that offer special opportunities that are not available in a 3-hour internship. See instructor prior to enrolling to determine if an available internship opportunity qualifies for 6 hours of credit.

CJ 4925 - Internship

Cross-listing: (SOC 4925 (5925), SW 4925)
Credit 9.

Prerequisite: Nine hours of sociology. Nine-hour internships are only available for internships that offer special opportunities that are not available in a 3- or 6-hour internship. The great majority of these will be summer internships that require the intern to work a 40-hour week. See instructor prior to enrolling to determine if an available internship opportunity qualifies for 9 hours of credit.

CJ 4940 - Independent Study

Cross-listing: (SOC 4940, SW 4940)

Credit 1.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4941 - Independent Study

Cross-listing: (SOC 4941, SW 4941)

Credit 1.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4948 - Independent Study

Cross-listing: SOC 4948, SW 4948

Credit 2.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of independent study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4949 - Independent Study

Cross-listing: SOC 4949, SW 4949

Credit 3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of independent study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper-division credit to fulfill major or minor requirements.

CJ 4950 - Independent Study

Cross-listing: SOC 4950 (5950), SW 4950 (5950)
Credit 3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is not appropriate course. Students may take a total of up to 6 hours of independent study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4951 - Independent Study

Cross-listing: SOC 4951, SW 4951

Credit 3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of independent study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4970 (5970) - Special Topics

Cross-listing: (SOC 4970 (5970), SW 4970)

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology.

CJ 4971 - Special Topics

Cross-listing: SOC 4971, SW 4971

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4972 - Special Topics

Cross-listing: SOC 4972, SW 4972

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4973 - Special Topics

Cross-listing: SOC 4973, SW 4973

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Student may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4974 - Special Topics

Cross-listing: SOC 4974, SW 4974

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4975 - Special Topics

Cross-listing: SOC 4975, SW 4975

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4976 - Special Topics

Cross-listing: SOC 4976, SW 4976

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4977 - Special Topics

Cross-listing: SOC 4977, SW 4977

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4978 - Special Topics

Cross-listing: (SOC 4978, SW 4978)

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4979 - Special Topics

Cross-listing: SOC 4979, SW 4979

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a

single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

CJ 4980 (5980) - Special Topics

Cross-listing: (SOC 4980 (5980), SW 4980)

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in criminology or criminal justice.

CJ 4990 (5990) - Special Topics

Cross-listing: (SOC 4990 (5990), SW 4990)

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in criminology or criminal justice.

Cooperative Education

COOP 2010 - Co-op Off-Campus Assignments

Credit 1.

Prerequisite: Approval by Office of Career Services and selection by employer. Each course represents one semester of off-campus work experience, practical learning, and training in the student's major field of study.

COOP 2020 - Co-op Off-Campus Assignments

Credit 1.

Prerequisite: Approval by Office of Career Services and selection by employer. Each course represents one semester of off-campus work experience, practical learning, and training in the student's major field of study.

COOP 2030 - Co-op Off-Campus Assignments

Credit 1.

Prerequisite: Approval by Office of Career Services and selection by employer. Each course represents one semester of off-campus work experience, practical learning, and training in the student's major field of study.

**COOP 4010 - Co-op Off-Campus Assignments
(Students on second year work assignments)**

Credit 1.

Prerequisite: Completion of three semesters of successful work experience, approval by Office of Career Services, and selection by employer. The 4000-series allows students to demonstrate more initiative and creativity and to accept more responsibility.

**COOP 4020 - Co-op Off-Campus Assignments
(Students on second year work assignments)**

Credit 1.

Prerequisite: Completion of three semesters of successful work experience, approval by Office of Career Services, and selection by employer. The 4000-series allows students to demonstrate more initiative and creativity and to accept more responsibility.

**COOP 4030 - Co-op Off-Campus Assignments
(Students on second year work assignments)**

Credit 1.

Prerequisite: Completion of three semesters of successful work experience, approval by Office of Career Services, and selection by employer. The 4000-series allows students to demonstrate more initiative and creativity and to accept more responsibility.

**COOP 4040 - Co-op Off-Campus Assignments
(Students on second year work assignments)**

Credit 1.

Prerequisite: Completion of three semesters of successful work experience, approval by Office of Career Services, and selection by employer. (when approved). The 4000-series allows students to demonstrate more initiative and creativity and to accept more responsibility.

Curriculum Education

CUED 4100 - Introduction to Curriculum

Lec. 3. Credit 3.

Principles for the selection, organization and evaluation of objectives and learning activities for the curriculum K-12.

CUED 4120 (5120) - Materials and Methods for Teaching Speech and Theatre

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: FOED 3820. Principles, objectives, techniques, and evaluation in secondary school teaching of speech and elementary and secondary school teaching of theatre.

CUED 4150 - Middle Level Curriculum

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: For SEED majors only, FOED 3830. An examination of the philosophy, organization, and curriculum of middle level education, including career awareness and exploration, interdisciplinary team

teaching, principles of classroom management, and family involvement in the schools.

CUED 4400 (5400) - Teaching Methods for Physical Sciences

Lec. 3. Credit 3.

This course focuses on teaching methods associated with the physical sciences of physics and chemistry. Students will experience and learn the theories behind inquiry, modeling, and other appropriate classroom instructional methods for physics and chemistry topics. Methods and topics will cover grades K-12 with a strong emphasis on conceptual understanding and vertically-aligned standards-based instruction.

CUED 4700 - Educational Data and Assessment

Lec. 2. Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Prepares teacher candidates to interpret data and apply effective assessment and evaluation in the PreK-12 classroom.

CUED 4750 (5750) - Service Learning Informal STEM Education.

Lec. 0-3. Credit 0-3.

This course provides students with the opportunity to plan, prepare, and present informal activities/lessons in science, technology, engineering, and mathematics to PreK-12th graders. Students in the 5000-level course will complete additional work. May be repeated for credit.

CUED 4800 - Student Engagement

Lec. 3. Credit 3.

Corequisite: ELED 4871 and ELED 4872. This course is designed for Residency I candidates to develop engaging strategies that support and meet the needs of all learners. Candidates will identify and learn to implement engaging strategies related to students' developmental, cultural, and socioeconomic factors.

CUED 4850 (5850) - Workshop in Education

Credit 1-6.

CUED 4851 - Workshop in Education

Credit 1, 2, 3.

The course will provide up-to-date content in emerging educational issues for in-service teachers. The specific topic will be designated in the title at each offering. The number of hours of credit will be based on the magnitude

of the topic and the clock hours of face-to-face and/or online attendance. Course objectives and grading guidelines will be established by the faculty at the time each course is offered. May be repeated for credit if the topic is different.

CUED 4852 - Workshop in Education

Credit 1, 2, 3.

The course will provide up-to-date content in emerging educational issues for in-service teachers. The specific topic will be designated in the title at each offering. The number of hours of credit will be based on the magnitude of the topic and the clock hours of face-to-face and/or online attendance. Course objectives and grading guidelines will be established by the faculty at the time each course is offered. May be repeated for credit if the topic is different.

CUED 4853 - Workshop in Education

Credit 1, 2, 3.

The course will provide up-to-date content in emerging educational issues for in-service teachers. The specific topic will be designated in the title at each offering. The number of hours of credit will be based on the magnitude of the topic and the clock hours of face-to-face and/or online attendance. Course objectives and grading guidelines will be established by the faculty at the time each course is offered. May be repeated for credit if the topic is different.

CUED 4856 - America Reads

Credit 1.

This course provides knowledge of the needs, characteristics, and tutoring methods pertaining to children and young adults with whom they will be working. Course may be repeated up to 3 times for a total of 3 credit hours.

CUED 4900 (5900) - Study Abroad

Lec. 1-6 Credit 1-6.

This course provides students the opportunity to engage in a Faculty-led study abroad experience which may involve a service-learning component. All participants must comply with established policy, procedures, and guidelines outlined in the Faculty-led Program Abroad Handbook maintained by Tennessee Tech's Study Abroad Office. Students in the 5000-level course will complete additional work. May be repeated for credit.

Decision Sciences

DS 2810 - Computer Applications in Business

Lec. 3. Credit 3.

Management approach to business applications of computer technology. Microcomputers and large-scale computers are used in problem solving. Credit cannot be obtained for CSC 1100 in addition to credit for either DS 2810 or FOED 3240.

(INFS 1010, TTP Course)

DS 3500 - Internship in Business and Information Technology

Lec. 3. Credit 3.

Prerequisite: Consent of BIT Internship Coordinator or Department Chairperson. A directed professional experience in the field of Business and Information Technology. Junior or Senior Standing Required.

DS 3515 - Internship in Business Intelligence and Analytics

Lec. 3. Credit 3.

Prerequisite: Consent of BIA Internship Coordinator or Department Chairperson. A directed professional experience in the field of Business Intelligence and Analytics. Junior or Senior Standing Required.

DS 3520 - Operations Management

Lec. 3. Credit 3.

Prerequisite: ECON 3610. Management of the processes, resources, and technologies in the production of goods and services. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 3540 - Quality and Productivity Systems

Lec. 3. Credit 3.

Prerequisite: DS 3520 or consent of instructor. Contemporary issues in quality and productivity management are examined. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 3620 - Business Analytics: Data Driven Decision Making

Lec. 3. Credit 3.

Prerequisite: DS 2810, ECON 3610. Business Analytics is the use of data and quantitative methods to help managers gain insight about business operations. This course will provide the fundamental concepts and tools

needed to understand the role of business analytics in organizations.
Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 3810 - Business Applications of Microcomputers

Lec. 3. Credit 3.
Prerequisite: DS 2810 or consent of instructor. Cost benefit considerations and development and implementation of microcomputer-based business applications are emphasized. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 3840 - Management Information Systems

Lec. 3. Credit 3.
Prerequisite: DS 2810. Management information needs and the technical, economic, and organizational impacts of these needs. Accounting majors must enroll in DS 3840. All other students must enroll in DS 3841. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 3841 - Management Information Systems

Lec. 3. Credit 3.
Prerequisite: DS 2810. Management information needs and the technical, economic, and organizational impacts of these needs. Accounting majors must enroll in DS 3840. All other students must enroll in DS 3841. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 3850 - Business Applications Development

Lec. 3. Credit 3.
Prerequisite: DS 2810. Introduction to development of business applications. Includes programming concepts such as variables, data types, control structures, and input/output files. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 3860 - Business Database Management

Lec. 3. Credit 3.
Prerequisite: DS 2810. Concepts of designing and managing databases in a business environment with emphasis on database design, and normalization. Enrollment in junior- or senior-level DS

courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 3870 - Business Applications Development II

Lec. 3. Credit 3.
Prerequisite: DS 3850. Advanced programming skills with emphasis on object-orientation, database integration, and web application development. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4010 - Decision Support Systems

Lec. 3. Credit 3.
Prerequisite: DS 3860 or consent of instructor. A current study of DSS concepts, designs, methodologies, and business applications, including expert systems. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4125 - Computer Forensics and Investigations

Lec. 3. Credit 3.
Prerequisite: Consent of instructor. Investigation, discovery, and analysis of digital computer evidence. Student work groups use computer hardware and forensic software to perform computer forensic investigations and solve sample cases. Students are introduced to and work with numerous computer forensic tools. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4210 - Business Intelligence

Lec. 3. Credit 3.
Prerequisite: DS 3860. Business Intelligence (BI) is the process of collecting data from a variety of sources and providing it to decision-makers in a form that enhances business value. This course will provide an understanding of data organization, BI processes and techniques, and how to transform data to support business decision-making. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4220 - Advanced Business Analytics

Lec. 3. Credit 3.
Prerequisite: DS 3620. This course provides an in-depth examination of the benefits and challenges of implementing analytics in a business environment. It

also covers advanced topics in data analysis that will assist managers in making better decisions. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4250 - Business Data Communications

Lec. 3. Credit 3.

Prerequisite: DS 2810. Concepts of data and voice communication networks for supporting business activities to include the OSI model, local and wide area networks, network security, and network management. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4260 - Network Security and Forensics

Lec. 3. Credit 3.

Prerequisite: DS 4250 or consent of instructor. Concepts of network security measures aimed at preventing unwanted access to a network and network forensics aimed at capturing and inspecting network traffic for later analysis. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4330 (5330) - Management Information Systems Analysis and Design

Lec. 3. Credit 3.

Prerequisite: DS 3860 or consent of instructor. An applications-oriented study of the business systems development life cycle and current systems analysis and design methods are emphasized. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4510 - Business Intelligence and Analytics Capstone

Lec. 3. Credit 3.

Prerequisite: DS 4210. Prerequisite or corequisite: DS 4220. This course brings together foundations of business intelligence and analytics by using a wide array of techniques to solve real-world business problems and support business decision-making.

DS 4550 - Information Systems Development Practicum

Lec. 3. Credit 3.

Prerequisite: DS 3870 and DS 4330 (5330). Corequisite: DS 4250. Students develop their knowledge and skills in planning, analyzing, designing, and implementing real-

world information systems. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4630 (5630) - Advanced Quantitative Analysis

Lec. 3. Credit 3.

Prerequisite: DS 3620. Advanced applications of quantitative methods, including forecasting and management science concepts. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 4900 (5900) - Special Topics in Decision Sciences

Lec. 1-3. Credit 1-3.

Prerequisite: Consent of instructor. Current topics in Decision Sciences. Enrollment in junior- or senior-level DS courses requires junior standing. All business majors must have completed the Basic Business Program.

DS 5050 - Quantitative Techniques for Business

Lec. 3. Credit 3.

Classical and modern optimization techniques and concepts. Basic review and introduction to business applications of probability, statistics, and management science methods.

Early Childhood Education

ECED 3001 - Curriculum for Infants, Toddlers & Preschoolers

Cross-listing: ECSP 3001

Lec. 3. Credit 3.

Prerequisite: HEC 2200. Survey of developmentally appropriate curricula for young children through age five with emphasis on creative activities, books and materials, toys, teacher-made resources, and software and specialized curricula for children with special needs.

ECED 3200 - Procedures for Infants, Toddlers & Preschoolers

Cross-listing: ECSP 3200

Lec. 3. Credit 3.

Prerequisite: HEC 2200, CFS 2400, and ECED 3001 or the equivalents. Corequisite: ECED 3211 or ECSP 3211. Planning and implementing developmentally appropriate practices for typically and atypically developing infants, toddlers, and preschoolers, including procedures for working with their families.

ECED 3211 - Practicum: Procedures for Infants, Toddlers & Preschoolers

Cross-listing: ECSP 3211

Lab. 1. Credit 1.

Prerequisite: HEC 2200, CFS 2400, or the equivalents; full admission to the Teacher Education Program.

Corequisite: ECED 3001. Supervised teaching and intervening with infants, toddlers, and preschoolers and their families in varied educational settings. A minimum grade of B is required to meet degree requirements.

ECED 3301 - Math, Science, Social Studies for the Young Child

Lec. 7. Credit 7.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ECED 3310. Developmentally appropriate materials and methods for integrated learning experiences in mathematics, science and social studies. Focus is on diverse and inclusive populations ages B-8. Includes practicum experiences.

ECED 3310 - Practicum: Concepts for Young Children

Lab. 4. Credit 1.

Corequisite: ECED 3301 and Full admission to the Teacher Education Program. Supervised teaching of integrated learning experiences in appropriate settings for preschooler-Grade 4 students. A minimum grade of B is required to meet degree requirements.

ECED 4000 - Developmentally Appropriate Practices: Birth – Preschool

Cross-listing: ECSP 4000.

Lec. 3. Lab. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Integrated learning experiences with emphasis on approaches, teaching strategies, and management.

ECED 4100 - Developmentally Appropriate Practices: K-4

Cross-listing: ECSP 4100

Lec. 2. Lab. 4. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Curriculum, instruction, management, and assessment for grades K-4 in diverse and inclusive settings. Includes practicum. A minimum grade of B is required to meet degree requirements.

ECED 4221 - Early Intervention Field Experience

Lab. 1. Credit 1.

Prerequisite: Full admission to the Teacher Education Program; ECED 4230 (5230). Corequisite: ECED 4240 (5240). Gain perspectives of children, families, and professionals in the early intervention system. Field experience focuses on family/professional interactions

and implementations of IFSP goals. A grade of B or better must be earned to advance to internship.

ECED 4230 (5230) - Early Intervention I

Lec. 3. Credit 3.

Prerequisite: CFS 2400. Methods of service delivery for infants and toddlers with developmental delays and their families. Effective consultation, trans-disciplinary collaboration, service coordination, family centeredness, and culturally responsive practices.

ECED 4240 (5240) - Early Intervention II

Lec. 3. Credit 3.

Prerequisite: ECED 4230 (5230). Corequisite: ECED 4221. Best practices in early intervention for a variety of special needs. Methods and curriculum development to enable effective reciprocal relationships with families.

ECED 4260 - Early Childhood Program Leadership, Administration and Assessment

Lec. 8. Credit 8.

Prerequisite: CFS 2400. Course content focuses on early childhood leadership skills, administration, and assessment. Participants gain knowledge and skills in the planning, implementation, and evaluation of early childhood programs. In addition, assessment of administrator knowledge, skills, and experience will be conducted.

ECED 4270 - Early Childhood Internship I

Lab. 5. Credit 5.

Prerequisite: ECED 4230 (5230), ECED 4240 (5240), ECED 4221, ECED 4260. Corequisite: ECED 4280. Supervised work experience in an early childhood related field with professional-level responsibilities.

ECED 4280 - Early Childhood Internship II

Lab. 7. Credit 7.

Prerequisite: ECED 4230 (5230), ECED 4240 (5240), ECED 4221 and ECED 4260. Corequisite: ECED 4270. Continued, supervised work experience in an early childhood related field with professional-level responsibilities.

ECED 4290 (5290) - Community Connections

Lec. 3. Credit 3.

Prerequisite: CFS 2400. Survey of community resources for families and young children, with an emphasis on federal, state and local programs.

ECED 4300 (5300) - Assessment of Young Children

Cross-listing: ECSP 4300 (5300)

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program; CFS 2400 or consent of instructor. Theories, principles, and practices associated with child find, assessment, and evaluation of young children, their families, and their environments.

ECED 4530 (5530) - Books and Related Materials for Infants and Toddlers

Cross-listing: LSCI 4530 (5530)

Lec. 1. Credit 1.

Survey of developmentally appropriate books and materials for infants, toddlers, and preschoolers.

ECED 4840 (5840) - Seminar: Language Acquisition from Birth to Five Years

Lec. 1. Credit 1.

Prerequisite or corequisite: ECED 4290 (5290). Study of early language development, problems and acquisition in children from birth to five years of age.

ECED 4870 - Student Teaching I

Cross-listing: ECSP 4870.

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ECED 4880 and ECED 4890.

Activities directly related to teaching performance, planning and presenting lessons, directing study, and managing the classroom. A minimum grade of B is required to meet degree requirements.

ECED 4880 - Student Teaching II

Cross-listing: ECSP 4880

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ECED 4870 and ECED 4890.

Continuation of ECED 4870 in a different setting.

ECED 4890 - Student Teaching Seminar

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ECED 4870 and ECED 4880.

Seminar on issues of student teaching with special emphasis on classroom management.

Early Childhood Special Education

ECSP 2400 - Children with Special Needs

Cross-listing: CFS 2400.

Lec. 3. Credit 3.

Knowledge of risk factors, developmental delay, and categories of disability. Understanding of special education and its emphasis on prevention, early

intervention, and services in normal environments. Practicum embedded into course.

ECSP 2410 - Practicum: Children with Special Needs

Cross-listing: CFS 2410

Lab. 4. Credit 1.

Supervised participation in service delivery settings.

ECSP 3001 - Curriculum for Infants, Toddlers & Preschoolers

Cross-listing: ECED 3001.

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program; HEC 2200. Survey of developmentally appropriate curricula for young children through age five with emphasis on creative activities, books and materials, toys, teacher-made resources, software, and specialized curricula for children with special needs.

ECSP 3200 - Procedures for Infants, Toddlers & Preschoolers

Cross-listing: ECED 3200

Lec. 3. Credit 3.

Prerequisite: HEC 2200, CFS 2400, and ECED 3001 or the equivalents. Corequisite: ECSP 3211 or ECED 3211. Planning and implementing developmentally appropriate practices for typically and atypically developing infants, toddlers, and preschoolers, including procedures for working with their families.

ECSP 3211 - Practicum: Procedures for Infants, Toddlers & Preschoolers

Cross-listing: ECED 3211.

Lab. 1. Credit 1.

Prerequisite: HEC 2200, CFS 2400 or the equivalents, and Full admission to the Teacher Education Program. Corequisite: ECSP 3001. Supervised teaching and intervening with infants, toddlers, and preschoolers and their families in varied educational settings. A minimum grade of B is required to meet degree requirements.

ECSP 4000 - Developmentally Appropriate Practices: Birth-Preschool

Cross-listing: ECED 4000.

Lec. 3. Lab. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Integrated learning experiences with emphasis on approaches, teaching strategies, and management.

ECSP 4100 - Developmentally Appropriate Practices: K-4

Cross-listing: ECED 4100.

Lec. 3. Lab. 4. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Curriculum, instruction, management, and assessment for grades K-4 in diverse and inclusive settings. Practicum embedded into course. A minimum grade of B is required to meet degree requirements.

ECSP 4300 (5300) - Assessment of Young Children

Cross-listing: ECED 4300 (5300).

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program; CFS 2400 or consent of instructor. Theories, principles and practices associated with child find, assessment, and evaluation of young children, their families, and their environments.

ECSP 4870 - Student Teaching I

Cross-listing: ECED 4870.

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ECSP 4880 and ECSP 4890. Activities directly related to teaching performance, planning and presenting lessons, directing study, and managing the classroom. A minimum grade of B is required to meet degree requirements.

ECSP 4871 - Residency I

Credit 5.

Prerequisite: ECED 3310 and FOED 3810 grade B or better; full admission to the Teacher Education Program, and full admission to Residency I. Corequisite: ECSP 4872. Performance based clinical experience in authentic settings involving planning appropriate instruction based on student's needs, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A minimum grade of B is required to meet degree requirements.

ECSP 4872 - Professional Seminar I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ECSP 4871. Seminar for Residency I candidates to develop curriculum, identify effective instructional strategies, and implement appropriate assessment methods to support and meet the needs of all learners. A minimum grade of B is required to meet requirements for licensure candidates.

ECSP 4880 - Student Teaching II

Cross-listing: ECED 4880.

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ECSP 4870 and ECSP 4890. Continuation of ECSP 4870 in a different setting. A minimum grade of B is required to meet degree requirements.

ECSP 4881 - Residency II

Credit 10.

Prerequisite: ECSP 4871 with a grade of B, and full

admission to the Teacher Education Program.

Corequisite: ECSP 4882. Performance based full time clinical experience in authentic settings involving planning appropriate instruction based on student's needs, demonstrating effective instructional strategies, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A minimum grade of B is required to meet degree requirements.

ECSP 4882 - Professional Seminar II

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ECSP 4881. Seminar for residency II candidates supporting professional development in areas of planning, assessment, instruction, classroom management, communication and reflection.

ECSP 4890 - Seminar: Student Teaching/Internship

Cross-listing: ECED 4890.

Lec. 2. Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ECSP 4870 and ECSP 4880. Examination of important professional topics, including a personal and professional profile, a portfolio, a resume, professional behavior, and professional organizations. Analysis of personal and professional resources.

Economics

ECON 2010 - Principles of Microeconomics

Lec. 3. Credit 3.

Supply and demand, theory of demand, principles of production, pricing, and distribution. Output market structures, labor markets and issues, and international trade.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences). (ECON 2020, TTP Course)

ECON 2020 - Principles of Macroeconomics

Lec. 3. Credit 3.

Aggregate supply and aggregate demand, employment and income determination, money and banking, monetary and fiscal policy, and international finance.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences). (ECON 2010, TTP Course)

ECON 3320 - Money and Banking

Lec. 3. Credit 3.

Prerequisite: ECON 2020. Principles of money, banking, and the financial system; the impact of money on economic activity. Enrollment in Junior- or Senior-level ECON courses requires Junior Standing. All business majors must have completed the Basic Business Program.

ECON 3610 - Business Statistics I

Lec. 3. Credit 3.

Prerequisite: MATH 1830 or MATH 1845 or MATH 1910 or consent of instructor. Statistical description, probability, probability distributions (binomial, Poisson, normal, and t), sampling distributions and the central limit theorem, interval estimation, hypothesis testing, and linear regression.

ECON 3630 - Business Statistics II

Lec. 3. Credit 3.

Prerequisite: ECON 3610. Advanced topics in probability, hypothesis testing, the power of a test, experimental design, and simple and multiple regression.

ECON 3810 - Intermediate Microeconomics

Lec. 3. Credit 3.

Prerequisite: ECON 2010. A formal and mathematically rigorous treatment of microeconomic analysis. Optimizing behavior and consumer choice theory. Firm production and costs; profit maximization. General equilibrium and the benefits of trade. Evaluation of government policy.

ECON 3820 - Intermediate Macroeconomics

Lec. 3. Credit 3.

Prerequisite: ECON 2020. Measurement and analysis of economic activity in the long run, and stabilization of economic activity over the business cycle using fiscal and monetary policy. Fundamentals of economic growth, as modeled by the Solow Growth model.

ECON 3830 - Managerial Economics

Lec. 3. Credit 3.

Prerequisite: ECON 2010 and ECON 3610. Theory and estimation of demand, production, and costs. Pricing and output decisions under different market structures, financial investment, government and business, and international business. Enrollment in Junior- or Senior-level ECON courses requires Junior Standing. All business majors must have completed the Basic Business Program.

ECON 4120 - Natural Resource Economics

Lec. 3. Credit 3.

Prerequisite: AGBE 2100 or ECON 2010. Static and dynamic models of renewable and non-renewable resource allocation. Application of principles of economics will identify the causes, consequences, and ways of dealing with natural resource problems, including problems associated with fisheries, forests, water problems, and land. Enrollment in Junior- or Senior-level ECON courses requires Junior Standing. All business majors must have completed the Basic Business Program.

ECON 4200 - Environmental Economics

Lec. 3. Credit 3.

Prerequisite: AGBE 2100 or ECON 2010. A detailed study of the economic foundations of Environmental Policy and common tools used by environmental economists to measure and analyze benefits and costs of environmental regulation and consider the characteristics of efficient regulation. Enrollment in Junior- or Senior-level ECON courses requires Junior Standing. All business majors must have completed the Basic Business Program.

ECON 4310 (5310) - Labor Economics

Lec. 3. Credit 3.

Prerequisite: ECON 2010, ECON 2020, and one of the following: ECON 3320, ECON 3810, or ECON 3820. Labor problems including economics of the labor market, wages, demand and supply of labor, and unemployment. Enrollment in Junior- or Senior-level ECON courses requires Junior Standing. All business majors must have completed the Basic Business Program.

ECON 4410 - Economic Foundations of the Law

Lec. 3. Credit 3.

Prerequisite or corequisite: ECON 3810 or consent of instructor. This course will explore the field of law and economics, using economic tools to analyze and explain the main areas of US civil law – property, torts and contracts – along with aspects of criminal and administrative law.

ECON 4510 (5510) - International Trade and Finance Cross-listing: FIN 4510

Lec. 3. Credit 3.

Prerequisite: ECON 2010, ECON 2020, and one of the following: ECON 3320, ECON 3810, or ECON 3820. International trade, monetary exchange, balance of payments, and foreign investments. Enrollment in Junior- or Senior-level ECON courses requires Junior

Standing. All business majors must have completed the Basic Business Program.

ECON 4520 (5520) - Comparative Economic Systems

Lec. 3. Credit 3.

Prerequisite: ECON 2020. Analysis of essential economic features of the economic systems. Enrollment in Junior- or Senior-level ECON courses requires Junior Standing. All business majors must have completed the Basic Business Program.

ECON 4530 (5530) - History of Economic Thought

Lec. 3. Credit 3.

Prerequisite: ECON 2020. Development of economic doctrines and schools and economic thought from the mercantilist period to the present. Enrollment in Junior- or Senior-level ECON courses requires Junior Standing. All business majors must have completed the Basic Business Program.

ECON 4600 (5600) - Economic Growth and Development

Lec. 3. Credit 3.

Prerequisite: ECON 2020. A critical survey of growth and strategies of economic development, including regional growth and development; historical evidence of development. Enrollment in Junior- or Senior-level ECON courses requires Junior Standing. All business majors must have completed the Basic Business Program.

ECON 4640 (5640) - Econometrics

Lec. 3. Credit 3.

Prerequisite: ECON 2010, ECON 2020, ECON 3610, and one of the following: ECON 3320, ECON 3810, or ECON 3820. An advanced treatment of statistical models applied to economics, including the general linear model, heteroscedasticity, autocorrelation, multicollinearity, simultaneous equations, and other violations of OLS assumptions. Enrollment in Junior- or Senior-level ECON courses requires Junior Standing. All business majors must have completed the Basic Business Program.

ECON 4900 (5900) - Contemporary Economics Workshop

Credit 1 to 6.

Thorough and intensive training of public-school teachers in fundamental economic principles and current issues. May not be counted as part of a degree program in the College of Business.

ECON 4990 - Special Topics

Credit 3 to 6 per semester. Maximum 6.

Directed study and research on a selected topic in economics. Available to senior economics majors on an individual basis with consent of departmental chairperson. Course may be taken more than once as topics change.

ECON 5030 - Fundamentals of Economics

Lec. 3. Credit 3.

Production and distribution of wealth and income and other basic principles of the market economy.

Educational Psychology

EDPY 2210 - Educational Psychology

Lec. 3. Credit 3.

Human growth and learning, nature of the learning process, factors that affect the learner, and application of psychological principles to teaching.

EDPY 3300 - Evaluation and Guidance

Lec. 3. Credit 3.

Major types of evaluation procedures, construction of evaluative instruments, and functions of the classroom teacher in evaluation.

Electrical and Computer Engineering

ECE 1020 - Connections to Electrical and Computer Engineering

Rec. 2. Credit 1.

Prerequisite: Freshman Standing and major in Electrical Engineering or Computer Engineering. Engages the student in academic and non-academic, out-of-classroom activities to facilitate transition into the electrical or computer engineering program. Faculty interaction, peer mentoring, professional student organizations and electronic kit construction.

ECE 2001 - Computer-Aided Engineering in ECE

Lec. 1. Credit 1.

Prerequisite: C or better in CSC 1300, C or better in ECE 2010, and C or better in MATH 2010 (ECE 2010 may be taken concurrently). Engineering problem formulation for computer calculations. Computer aided engineering software with applications in electrical and computer engineering.

ECE 2010 - Electric Circuits I

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 1920, C or better in MATH 2010, and C or better in MATH 2120 (MATH 2120 may be taken concurrently). Introduction to electric circuit quantities and components, systematic application of Ohm's and Kirchhoff's laws, superposition, Thévenin and Norton theorems, operational amplifiers, RL and RC transients, and circuit simulation with SPICE. Circuit applications of probability.

ECE 2011 - Electrical Engineering Lab I

Lab. 3. Credit 1.

Prerequisite: C or better in ECE 2010 (ECE 2010 may be taken concurrently). Introduction to electrical and electronic components, circuits, test equipment, and measurement techniques.

ECE 2020 - Electric Circuits II

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 2001, C or better in ECE 2010, C or better in ECE 2011, C or better in MATH 2010, C or better in MATH 2120, and C or better in CSC 1300 (ECE 2001 and/or ECE 2011 may be taken concurrently). Laplace transform methods for electric circuit analysis. Sinusoidal steady-state and power, mutual inductance, 3-phase circuits, frequency response, Bode plots, resonance, and filters. Circuit simulation with SPICE. Circuits applications of probability.

ECE 2110 - Introduction to Digital Systems

Lec. 3. Credit 3.

Prerequisite: C or better in CSC 1300. Basic concepts in the design and analysis of digital systems. Number systems and codes. Combinational circuit analysis and design using Boolean algebra. Sequential logic circuit analysis and design.

ECE 2850 - Principles of Electric Currents

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 1920, C or better in MATH 2010, MATH 2120 (MATH 2120 may be taken concurrently). Introduction to electric circuit quantities and components, systematic application of Ohm's and Kirchhoff's laws, superposition, Thévenin and Norton theorems, operational amplifiers, RL and RC transients, Laplace transform methods for electric circuit analysis, steady-state ac-circuit solution, power in ac-circuits, and 3-phase circuits. Will not count for credit for Electrical Engineering or Computer Engineering majors.

ECE 3010 - Signals and Systems

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 2001 and C or better in ECE 2020. Time-domain and frequency-domain analysis of signals and systems, applications of Fourier series, Fourier transform, and Laplace transform in circuits and systems; Analog filters.

ECE 3020 - Discrete-Time Signals and Systems

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3010. Signal sampling and reconstruction. Difference equations, Z-transforms, and the discrete Fourier transform. Fundamentals of digital filters.

ECE 3060 - Electrical Engineering Lab II

Lab. 3. Credit 1.

Prerequisite: C or better in ECE 2001, C or better in ECE 2011, C or better in ECE 2020, C or better in ECE 3010 and C or better in ECE 3300. (ECE 3010 and/or ECE 3300 may be taken concurrently.) Electrical and electronic circuits and measurement techniques, amplifiers, active and passive filters, switching circuits.

ECE 3130 - Microcomputer Systems

Lec. 3. Lab. 3. Credit 4.

Prerequisite: C or better in CSC 1300 or CSC 2100, C or better in ECE 2011, and C or better in ECE 2110. Microcomputer system architecture. Software/hardware analysis. Programming microcomputer system using Assembly and C languages. Design hardware subsystem and integration with microcontroller for engineering application.

ECE 3160 - Digital Systems Lab

Lab. 3. Credit 1.

Prerequisite: C or better in ECE 2011 and C or better in ECE 2110. Hardware considerations and performance of combinational and sequential digital devices including gates, flip-flops, multiplexers, and decoders.

ECE 3210 - Control System Analysis

Lec. 3. Credit 3.

Prerequisite: PHYS 2110 and C or better in either ECE 3010 or ME 2330. Modern and classical methods of control system analysis of continuous-time systems. Introduction to design tools.

ECE 3260 - Control System Lab

Lab. 3. Credit 1.

Prerequisite: C or better in ECE 3060 or ME 3023 and C or better in ECE 3210 (ECE 3210 may be taken concurrently). Simulation of dynamic systems.

Demonstration of control system analysis and design techniques using hardware experiments.

ECE 3270 - Programmable Logic Controller Lab

Lab. 3. Credit 1.

Prerequisite: C or better ECE 3060, or C or better ME 3023, or C or better in CHE 2020, or C or better CEE 3030, or C or better MET 3200. Introduction to Ladder Logic Programming, Relays, PLC in Automation & Control, Safety, Hardware Troubleshooting, Hands-on laboratory experiments and projects.

ECE 3300 - Electronics I

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 2011, C or better in ECE 2020, and C or better in ECE 3010 (ECE 3010 may be taken concurrently). Introduction to semiconductor junction devices and their physical operation, mid-band equivalent circuits, single and multi-stage amplifiers, and SPICE simulation.

ECE 3310 - Electronics II

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3010 and C or better in ECE 3300. Differential amplifiers, frequency response, negative feedback, power output stages, and SPICE simulation.

ECE 3360 - Electronics Lab

Lab. 3. Credit 1.

Prerequisite: C or better in ECE 3010, C or better in ECE 3060 and C or better in ECE 3300. Diodes, BJTs, FETs, and amplifier circuits.

ECE 3510 - Electromagnetic Fields I

Lec. 3. Credit 3.

Prerequisite: PHYS 2120 and C or better in MATH 2110. Development of Maxwell's equations for electric and magnetic fields. Electromagnetic properties of materials. Wave equation, plane waves, and Lorentz force law.

ECE 3540 - Physical Electronics

Lec. 3. Credit 3.

Prerequisite: PHYS 2120. Quantum and wave theory in metals and semiconductors, carrier density, and current relations. Models for basic semiconductor devices.

ECE 3560 - EM Simulation Lab

Lab. 3. Credit 1.

Prerequisite: C or better in ECE 3060 and C or better in

ECE 3510. Simulation and design of phenomena and devices with EM fields and waves.

ECE 3610 - Introduction to Power Systems

Lec. 3. Credit 3.

Prerequisite: PHYS 2120 and C or better in ECE 2020. Overview of electric power systems, magnetic circuits and transformers, electromechanical energy conversion, rotating machines, power system operation and control, and current issues in power systems.

ECE 3660 - Electric Power Lab

Lab. 3. Credit 1.

Prerequisite: C or better in ECE 3060 and C or better in ECE 3610. Operation of various power system components, design tests of transformers, speed control characteristics of various types of motors and generators, and computer simulation of power system operation.

ECE 3710 - Introduction to Telecommunications

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3010 and C or better in MATH 3470 (MATH 3470 may be taken concurrently). Introduction to analog and digital communication systems: modulation and demodulation, signal spectra, coding for data compression and error correction.

ECE 3760 - Telecommunications Lab

Lab. 3. Credit 1.

Prerequisite: C or better in ECE 3060 and C or better in ECE 3710. Telecommunication system measurements.

ECE 3810 - Fundamentals of Electrical Engineering

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 1920. An introduction to fundamental principles of electrical circuits, DC and AC circuit analysis techniques, electric power systems, electric motors, diodes and rectifiers, operational amplifiers, frequency response and filters. Will not count for credit for Electrical Engineering or Computer Engineering majors.

ECE 3860 - Fundamentals of Electrical Engineering Lab

Lab. 3. Credit 1.

Prerequisite: C or better in ECE 3810 (ECE 3810 may be taken concurrently). Basic instrumentation and component laboratory. Use of instruments in DC and AC measurements. Demonstration of circuit concepts. Characteristics of diodes, operational amplifiers and AC

filters. Simple digital logic circuits. Will not count for credit for Electrical Engineering or Computer Engineering majors.

ECE 3920 - Professional Issues in Electrical and Computer Engineering

Lec. 1. Rec. 1. Credit 1.

Prerequisite: Junior Standing, C or better in ECE 2020, and either C or better in COMM 2025 or C or better in PC 2500. (COMM 2025 or PC 2500 may be taken concurrently.) Professional topics in Engineering, verbal technical communications.

ECE 4020 (5020) - Digital Signal Processing

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3020 and C or better in ECE 3130. Theory and practice of discrete-time signals and systems, A/D and D/A conversion, filter design, DSP Architecture and implementation, programming, DSP applications.

ECE 4110 (5110) - Digital System Design

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 2110 and C or better in ECE 3160. Computer-aided combinational and sequential digital logic analysis, design, and applications, utilizing both standard digital components and programmable logic devices.

ECE 4120 (5120) - Fundamentals of Computer Design

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3130 and C or better in ECE 4110 (5110). Continuation of digital system design concepts and applications with emphasis on computer hardware design: CPU sequencers, arithmetic/logic units, fixed and floating-point arithmetic implementations, and computer peripheral interfacing, utilizing programmable logic.

ECE 4130 (5130) - Introduction to Digital VLSI

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 2110 and C or better in ECE 3300. Analysis, design and layout of complex digital integrated circuits in MOS technology. The course emphasizes design through projects and requires extensive use of simulation and layout VLSI CAD tools.

ECE 4140 - Embedded System Design

Lec. 2. Lab. 3. Credit 3.

Prerequisite: C or better in ECE 3130. Basic hardware

and software concepts in the analysis and design of embedded systems, peripheral interfaces and performance analysis with hands-on design project.

ECE 4210 (5210) - Control System Design

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3210 and C or better in ECE 3260. Design of compensators using frequency domain techniques; Design projects with hardware implementation.

ECE 4370 (5370) - Mechatronics and Intelligent Machines Engineering

Cross-listing: ME 4370 (5370)

Lec. 2. Lab. 2. Credit 3.

Prerequisite: C or better in ECE 3130 and C or better in ECE 3160. Mechatronics; number systems; microcontroller technology and architecture of 8-bit microcontrollers (e.g. Motorola MC68HC110); assembly language programming; A/D and D/A conversion; parallel I/O; programmable timer operation; interfacing sensors and actuators; applications; and team project on design and implementation of a mechatronic system.

ECE 4510 (5510) - Electromagnetic Fields II

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3510. Polarization, Poynting's vector, transmission lines, waveguides, and radiation.

ECE 4520 (5520) - Optoelectronic Engineering

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3540. Device theory for optical communication and instrumentation systems.

ECE 4610 (5610) - Power System Analysis

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3610. Power system components modeling in steady state, per unit calculations, transmission line steady state operation, power flow analysis, applications of commercial software.

ECE 4620 (5620) - Power System Operation and Control

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 4610 (5610). Symmetrical components, fault analysis, system protection, transient stability, power system controls including: automatic generation control, voltage regulation, and economic dispatch.

ECE 4630 (5630) - Power Electronics

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3300 and C or better in ECE 3610. Uncontrolled and controlled rectifiers, voltage controllers, chopper, dc motor control, pulse-width modulation inverters, induction motor control, and power supplies.

ECE 4710 (5710) - Principles of Telecommunications

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 3710 and C or better in MATH 3470. Performance of analog and digital communication systems in the presence of noise.

ECE 4720 (5720) - Telecommunication Systems Design

Lec. 3. Credit 3.

Prerequisite: C or better in ECE 4710 (5710). Link budget, synchronization, frequency synthesis, receiver architecture, noise and distortion, error correction codes, spread-spectrum systems.

ECE 4931 - Research Topics

Credit 1.

Prerequisite: Consent of instructor. Development of research proposal including problem definition, literature review, and identification of potential research approaches.

ECE 4932 - Research Topics

Credit 2.

Prerequisite: Consent of instructor. Execution of research proposal developed in ECE 4931, culminating in a final report including experimental or simulation results.

ECE 4933 - Research Topics

Credit 3.

Prerequisite: Consent of instructor. Development of research proposal including problem definition, literature review, and identification of potential research approaches. Execution of research proposal developed, culminating in a final report including experimental or simulation results.

ECE 4961 - Capstone Design I

Lec. 2. Lab. 4. Credit 3.

Prerequisite: C or better in ECE 3010, C or better in ECE 3020, C or better in ECE 3060, C or better in ECE 3130, C or better in ECE 3300, C or better in ECE 3920,

and either C or better in COMM 2025 or C or better in PC 2500. (ECE 3020 may be taken concurrently). The first in a sequence of two capstone design project courses. Student teams will complete an industry client-driven system design project. Teamwork, leadership, project planning and management, specification, budgeting, design review, subsystem development, testing, weekly reporting, documentation, and oral presentation.

ECE 4971 - Capstone Design II

Lec. 2. Lab. 4. Credit 3.

Prerequisite: ECE 4961. The second in a sequence of two senior capstone design project courses. Student teams will complete an industry client-driven system design project. Teamwork, leadership, project planning and management, specification, budgeting, design review, implementation, testing, weekly reporting, documentation, and oral presentation.

ECE 4990 (5990) - Special Problems

Credit 1-6 Per Semester, Maximum 12.

Prerequisite: Consent of instructor. Current topics in electrical engineering in the form of a reading course or an experimental lecture course. (Because of the impossibility of duplicating the conditions of a special topic(s), this course may not be repeated for the improvement of a grade.)

Elementary Education

ELED 2100 - Problem Solving for Technological Literacy

Lec. 3. Credit 3.

Prerequisite: FOED 2011 and FOED 1822 or FOED 1820. Course is designed to provide opportunities for preservice K-6 teachers to explore problems that arise naturally in the world and to develop their critical thinking and problem-solving skills. This course will focus on the development of technological literacy among future educators. This course will encourage teachers to capitalize on students' natural curiosity about the world and how it works. Education and Engineering faculty will work in collaboration to develop and facilitate real-world problem-solving experiences designed to develop a more technologically literate citizenry.

ELED 3140 - Teaching of Social Studies

Lec. 2. Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ELED 3152, ELED 4142, FOED 3800. Current practices, research, innovations, and unit method are emphasized. A minimum grade of B is

required to meet degree requirements for licensure candidates.

ELED 3151 - Teaching of Language Arts and Writing

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ELED 3140, ELED 3152, ELED 4140. While implementing the writing process, candidates will review, explore, and apply grammatical and mechanical aspects of writing in various genres, for different purposes and audiences, and across content areas.

ELED 3152 - Teaching of Mathematics

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ELED 3140, ELED 4142, FOED 3800. Use of modern methods and strategies for teaching mathematics and translating theory into practice. A minimum grade of B is required to meet degree requirements for licensure candidates.

ELED 3872 - Professional Seminar I

Credit 5.

Corequisite: ELED 4871. Seminar for residency I candidates to develop curriculum, identify effective instructional strategies, and implement appropriate assessment methods to support and meet the needs of all learners.

ELED 4140 - Science for Elementary Teachers

Lec. 2. Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ELED 3140, ELED 3152, FOED 3800. Curricula content of elementary school science including materials and methods of developing understanding and skills in science for children.

ELED 4142 - Teaching of Science

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ELED 3140, ELED 3152, FOED 3800. Curricula content of elementary school science including materials and methods of developing understanding and skills in science for children. A minimum grade of B is required to meet degree requirements for licensure candidates.

ELED 4250 (5250) - Language Arts and Communication Skills

Lec. 2. Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Relationship of language development and thinking to teaching communications skills to children in the middle grades.

ELED 4870 - Student Teaching I

Credit 5.

Prerequisite: The prerequisite to all upper-division education courses is full admission to the Teacher Education Program. Corequisite: ELED 4880 and ELED 4890. Activities directly related to teaching performance, planning and presenting lessons, directing study, and managing the classroom.

A grade of B is required to meet degree requirements.

ELED 4871 - Residency I

Credit 5.

Prerequisite: FOED 3810 and FOED 3800 grade "B" or better, full admission to the Teacher Education Program and full admission to Residency I. Corequisite: ELED 4872. Performance based clinical experience in authentic settings involving planning appropriate instruction based on student's needs, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A minimum grade of B is required to meet degree requirements.

ELED 4872 - Professional Seminar I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ELED 4871. Seminar for Residency I candidates to develop curriculum, identify effective instructional strategies, and implement appropriate assessment methods to support and meet the needs of all learners. A minimum grade of B is required to meet requirements for licensure candidates.

ELED 4880 - Student Teaching II

Credit 5.

Prerequisite: The prerequisite to all upper-division education courses is full admission to the Teacher Education Program. Corequisite: ELED 4870 and ELED 4890. Continuation of ELED 4870 in a different setting. A grade of B is required to meet degree requirements.

ELED 4881 - Residency II

Credit 10.

Prerequisite: ELED 4871 with a grade of B, full admission to the Teacher Education Program. Corequisite: ELED 4882. Performance based full time clinical experience in authentic settings involving

planning appropriate instruction based on student's needs, demonstrating effective instructional strategies, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A minimum grade of B is required to meet degree requirements.

ELED 4882 - Professional Seminar II

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: ELED 4881. Seminar for residency II candidates supporting professional development in areas of planning, assessment, instruction, classroom management, communication and reflection.

ELED 4890 - Seminar: Education and Society

Credit 2.

Prerequisite: The prerequisite to all upper-division education courses is full admission to the Teacher Education Program. Corequisite: ELED 4870 and ELED 4880. Seminar on issues related to the interrelationships among school, culture, and society; a historical, philosophical, and sociological analysis.

Engineering

ENGR 1020 - Connections to Engineering and Technology

Rec. 2. Credit 1.

Prerequisite: Freshman Standing. Engages the student in meaningful academic and non-academic, out-of-the classroom activities involving engineering and technology. Emphasizes critical thinking in the formation of academic and social goals and support groups and in self-management and study skills.

ENGR 1110 - Engineering Graphics

Lec. and Lab. 4. Credit 2.

Visualization skills and graphic communication techniques for engineers, sketching, computer-aided drafting, and solid modeling, drawing interpretation.

ENGR 1120 - Programming for Engineers

Lec. and Lab. 4. Credit 2.

Prerequisite: ACT Math score of 27 or above, or MATH 1720, MATH 1730, MATH 1845 or MATH 1910. (MATH 1845 or MATH 1910 can be taken concurrently.) Problem definition, algorithm development, flowcharting, and structured programming using a high-level language.

ENGR 1210 - Introduction to Engineering

Lec. and Lab. 2. Credit 1.

Introduction to engineering and engineering technology, the engineering problem solving method, engineering design, and engineering ethics.

ENGR 1220 - Introduction to Emerging Technologies (Tennessee Governor's School for Emerging Technologies)

Lec. and Rec. 2 Credit 1

Introduction to emerging technologies through the Tennessee Governor's School for Emerging Technologies (GSET). Studies, projects, and research activities in emerging technologies.

ENGR 1310 - Excel and Visual Basic for Engineers

Lec. and Lab. 4. Credit 2.

Prerequisite: Algebra. Problem definition, algorithm development, flowcharting/pseudocode, spreadsheet fundamentals, structured programming using Excel/VBA and Visual Basic, and engineering applications of spreadsheets and programming.

ENGR 2121 - Engineering Applications in C

Lec. and Lab. 2. Credit 1.

Prerequisite: ENGR 1120. Corequisite: MATH 1920. C language programming for engineering applications. Effective use of functions, arrays, pointers, and data structures. Modular program design. Program validation and documentation.

ENGR 2810 - Electrical Engineering Fundamentals I

Lec. 3. Credit 3.

Prerequisite: MATH 1920. An introduction to fundamental principles of electrical circuits, DC and AC circuit analysis techniques. First and second order transients. Frequency response and filters. Digital logic circuits. Circuit simulation with SPICE.

ENGR 2820 - Electrical Engineering Fundamentals II

Lec. 3. Credit 3.

Prerequisite: ENGR 2810. Continuation of ENGR 2810. Electronic devices and circuits including diodes, transistors and op amps. Transformers and electromechanics of DC and AC machines. Circuit simulation with SPICE.

ENGR 2821 - Electrical Engineering Fundamentals Lab

Lab. 3. Credit 1.

Prerequisite: ENGR 2820 (ENGR 2820 may be taken concurrently). Introduction to electrical and electronic components, circuit construction, test equipment, and measurement techniques; DC and AC measurements, applications of transistors, operational amplifiers, and digital logic.

ENGR 2991 - Special Problems

Credit 1.

Prerequisite: Consent of Departmental Chairperson. Special topics in a traditional or nontraditional classroom setting; individual or group research; or faculty-directed readings. May not be repeated to improve a grade.

ENGR 2992 - Special Problems

Credit 2.

Prerequisite: Consent of Departmental Chairperson. Special topics in a traditional or nontraditional classroom setting; individual or group research; or faculty-directed readings. May not be repeated to improve a grade.

ENGR 2993 - Special Problems

Credit 3.

Prerequisite: Consent of Departmental Chairperson. Special topics in a traditional or nontraditional classroom setting; individual or group research; or faculty-directed readings. May not be repeated to improve a grade.

ENGR 2994 - Special Problems

Credit 4.

Prerequisite: Consent of Departmental Chairperson. Special topics in a traditional or nontraditional classroom setting; individual or group research; or faculty-directed readings. May not be repeated to improve a grade.

ENGR 3020 - Numerical Methods

Cross-listing: (CSC 3020)

Lec. 3. Credit 3.

Prerequisite: MATH 1920 and C or better in CSC 1310 or CSC 2100 or ENGR 1120. Linear and non-linear equations; convergence and error analysis; quadrature; interpolation; numerical differentiation and integration; first order differential equations; boundary value problems; and approximation of functions.

ENGR 3120 - Solid Modeling

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ENGR 1110, CEE 3110. (CEE 3110 may be taken concurrently.) Introduction to computer-aided 3D solid modeling.

ENGR 3710 - Principles of Engineering Economy

Cross-listing: (CEE)

Lec. 2. Credit 2.

Prerequisite: MATH 1920. Concepts and techniques useful in the economic evaluation of engineering alternatives.

ENGR 3720 - Engineering Statistics

Cross-listing: (CEE)

Lec. 2. Credit 2.

Prerequisite: MATH 1920 and Junior Standing. Engineering applications of probability, hypothesis testing, and confidence intervals.

ENGR 3851 - Internships for Exchange Students in the College of Engineering

Credit 1. Maximum 6.

Prerequisite: Consent of instructor. Directed study and research on selected areas for international students while participating in an exchange program at Tennessee Tech.

ENGR 3852 - Internships for Exchange Students in the College of Engineering

Credit 2. Maximum 6.

Prerequisite: Consent of instructor. Directed study and research on selected areas for international students while participating in an exchange program at Tennessee Tech.

ENGR 3853 - Internships for Exchange Students in the College of Engineering

Credit 3. Maximum 6.

Prerequisite: Consent of instructor. Directed study and research on selected areas for international students while participating in an exchange program at Tennessee Tech.

ENGR 3951 - Special Topics for Non-Engineers

Credit 1, 2, 3. Maximum 6.

Prerequisite: Consent of instructor. Timely topics in engineering and technology—the relationships to other professions. This course may not be used to earn credit toward an Engineering degree.

ENGR 3952 - Special Topics for Non-Engineers

Credit 1, 2, 3. Maximum 6.

Prerequisite: Consent of instructor. Timely topics in engineering and technology—the relationships to other professions. This course may not be used to earn credit toward an Engineering degree.

ENGR 3953 - Special Topics for Non-Engineers

Credit 1, 2, 3. Maximum 6.

Prerequisite: Consent of instructor. Timely topics in engineering and technology—the relationships to other professions. This course may not be used to earn credit toward an Engineering degree.

ENGR 4500 - Reliability and Quality Engineering

Cross-listing: (VE)

Lec. 3. Credit 3.

Prerequisite: MATH 3470 or ENGR (CEE) 3720. Basic engineering and statistics principles as well as advanced tools focusing on design of experiment, statistical process control and reliability engineering are presented. Theoretical and practical methods to improve the capability of systems to perform their designated functionalities, to predict the probability of their functioning without failures in certain environments for desired periods, to assess their maintainability, availability and safety based on sampled data, and to make decisions on corrective and mitigation.

ENGR 4510 - Engineering Management

Lec. 3. Credit 3.

Prerequisite: Senior Standing in an Engineering discipline. Management theory applied to engineering and technical organizations. Topics include management functions in an engineering context; engineering techniques and tools for management; project management; management/leadership of technical people and teams; and contemporary engineering management topics, e.g., rapid technological change and globalization.

ENGR 4851 - International Experiences for College of Engineering Students

Credit 1. Maximum 6.

Prerequisite: Consent of instructor. Directed study and research on selected areas while participating in international experience as a Tennessee Tech College of Engineering student.

ENGR 4852 - International Experiences for College of Engineering Students

Credit 2. Maximum 6.

Prerequisite: Consent of instructor. Directed study and research on selected areas while participating in international experience as a Tennessee Tech College of Engineering student.

ENGR 4853 - International Experiences for College of Engineering Students

Credit 3. Maximum 6.

Prerequisite: Consent of instructor. Directed study and research on selected areas while participating in international experience as a Tennessee Tech College of Engineering student.

ENGR 4900 - Engineering Design, Professionalism, and Ethics

Lec. 3. Credit 3.

Prerequisite: CEE 3110 , ME 3010 , ENGR 3120 , ENGR 3710 (CEE 3710), and Senior Standing in Engineering. Engineering design process. Professional and societal issues in engineering practice. Engineering ethics.

ENGR 4950 - Senior Design I

Lec. 2. Lab. 4. Credit 3.

Prerequisite: ECE 2020, ME 3023, ME 3210 and Senior Standing. The first is a sequence of two capstone design project courses. Student teams will complete an industry client-driven system design project. Teamwork, leadership, project planning and management, specification, budgeting, design review, subsystem development, testing, weekly reporting, documentation, and oral presentation.

ENGR 4960 - Senior Design II

Lec. 2. Lab. 4. Credit 3.

Prerequisite: ENGR 4950. The second in a sequence of two senior capstone design project courses. Student teams will complete an industry client-driven system design project. Teamwork, leadership, project planning and management, specification, budgeting, design review, implementation, testing, weekly reporting, documentation, and oral presentation.

ENGR 4991 - Special Problems

Credit 1.

Prerequisite: Consent of Departmental Chairperson. Special topics in a traditional or nontraditional classroom setting; individual or group research; or faculty-directed readings. May not be repeated to improve a grade.

ENGR 4992 - Special Problems

Credit 2.

Prerequisite: Consent of Departmental Chairperson. Special topics in a traditional or nontraditional classroom setting; individual or group research; or faculty-directed readings. May not be repeated to improve a grade.

ENGR 4993 - Special Problems

Credit 3.

Prerequisite: Consent of Departmental Chairperson. Special topics in a traditional or nontraditional classroom setting; individual or group research; or faculty-directed readings. May not be repeated to improve a grade.

ENGR 4994 - Special Problems

Credit 4.

Prerequisite: Consent of Departmental Chairperson. Special topics in a traditional or nontraditional classroom setting; individual or group research; or faculty-directed readings. May not be repeated to improve a grade.

English

ENGL 1010 - English Composition I

Lec. 3. Credit 3.

Introduces students to expressive, expository and persuasive writing. Assignments are based on personal experience and research. Student must earn a grade of C or better to pass.

◆ Meets Tennessee Technological University general education requirement (Communication/English Composition).

ENGL 1020 - English Composition II

Lec. 3. Credit 3.

Prerequisite: ENGL 1010. Builds on writing and research processes taught in ENGL 1010; emphasizes critical reading, critical thinking, and critical writing (persuasion) about a variety of written texts and other media. Student must earn a grade of C or better to pass.

◆ Meets Tennessee Technological University general education requirement (Communication/English Composition).

ENGL 2130 - Topics in American Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1020. Not for ENG or SEEN majors. Representative authors, periods, or themes from the colonial period to the present.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

ENGL 2235 - Topics in British Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1020. Not for ENG majors. Representative authors, periods, or themes from Old English to the present.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

ENGL 2330 - Topics in World Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1020. Representative authors, periods, or themes from various world literary cultures.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

ENGL 3000 - Introduction to English Methods and Research

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235 and ENGL 2330 are prerequisites for all Upper Division courses. The prerequisite for Upper Division courses of ENGL 2130, ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Basic sources, research methodology, critical theory, and writing processes/formats needed by majors.

ENGL 3250 - Professional Communication I

Cross-listing: PC 3250

Lec. 3. Credit 3.

Prerequisite: ENGL 1020. The preparation of effective technical and professional reports and the preparation and delivery of effective oral reports.

ENGL 3400 - Introduction to Creative Writing

Lec. 3. Credit 3.

Prerequisite: At least a grade of C or better in one Sophomore-Level literature course (ENGL 2130, ENGL 2235, ENGL 2330) or a grade of C or better in ENGL 3810, ENGL 3820, ENGL 3910 or ENGL 3920, or consent of instructor. An introductory-level creative writing course in at least two genres: fiction, poetry, literary nonfiction, or drama. Genres to be determined by the instructor.

ENGL 3500 - Mythology

Spring. (O). Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Greek and Roman myths in relation to modern life and literature.

(O) and (E) Denote Odd and Even Years Respectively

ENGL 3600 - The Bible as Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper-division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2230 or ENGL 2330 is waived for ENGL and SEEN majors. This course examines the wide variety of genres and narratives that form the Bible—from the mythological and genealogical to the poetic and prophetic—and does this from critical, literary, cultural, and rhetorical perspectives.

ENGL 3810 - British Literature I

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. A survey of British authors from Old English through the eighteenth century.

ENGL 3820 - British Literature II

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. A survey of British authors from the Romantics to the present.

ENGL 3910 - American Literature I

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. A survey of American writers from the colonial period through the mid-nineteenth century.

ENGL 3920 - American Literature II

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. A survey of American writers from the mid-nineteenth century through the present.

ENGL 4111 (5111) - Chaucer

Spring. (E). Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235, or ENGL 2330 is waived for ENGL and SEEN majors. Selected works of Geoffrey Chaucer.

(O) and (E) Denote Odd and Even Years Respectively

ENGL 4121 (5121) - Shakespeare

Cross-listing: THEA 4121 (5121)

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Historical, thematic and other approaches in the study of Shakespeare. (May be repeated once as an elective provided the course content is different.)

ENGL 4130 (5130) - Milton

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Selected works of John Milton.

ENGL 4140 (5140) - Topics in British Literature to 1667

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Topics in Medieval and/or Early Modern British literature. Course may be repeated provided the content is different each time.

ENGL 4210 (5210) - Eighteenth-Century British Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and

SEEN majors. Studies in eighteenth-century British literature.

ENGL 4221 (5221) - Romantic Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Studies in Romantic literature.

ENGL 4231 (5231) - Victorian Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Studies in Victorian literature.

ENGL 4240 (5240) - Topics in British Literature after 1667

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Studies in Modern British literature. Course may be repeated provided the content is different each time.

ENGL 4250 (5250) - Post Modern Literatures in English

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for Upper Division courses of ENGL 2130, ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Studies in postmodern literary issues.

ENGL 4310 (5310) - Early American Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235, or ENGL 2330 is waived for ENGL and SEEN majors. Study of American literature from colonial period through early nationalist period.

ENGL 4320 (5321) - Nineteenth Century American Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Study of the literature and literary movements of the period, with emphasis on romanticism and/or realism.

ENGL 4330 (5330) - Modern American Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Study of the literature and literary movements of the period, with emphasis on the twentieth century and/or contemporary period.

ENGL 4340 (5340) - Topics in American Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Thematic, interdisciplinary or genre-based approaches to American literary study beyond the usual scope of ENGL 4310 (5310), ENGL 4320 (5321), or ENGL 4330 (5330). Course may be repeated provided the content is different each time.

ENGL 4411 (5411) - Writing in the Professions

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. This course builds on students' present writing competency and focuses on writing in their particular majors and/or professions.

ENGL 4421 (5421) - Forms of Argumentation and Persuasion: Theory and Practice

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL

2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Introduces students to various models of argumentation through theory (readings) and practice (analysis and production).

ENGL 4430 (5430) - Creative Writing: Fiction

Lec. 3. Credit 3.

Prerequisite: Grade of C or better in ENGL 3400 or prior consent of the instructor. Guided practice in the craft and art of writing short fiction. Course may be repeated provided the content is different each time.

ENGL 4440 (5440) - Creative Writing: Essay

Lec. 3. Credit 3.

Prerequisite: Grade of C or better in ENGL 3400 or prior consent of the instructor. Guided practice in the craft and art of writing personal essays. Course may be repeated provided the content is different each time.

ENGL 4450 (5450) - Creative Writing: Poetry

Lec. 3. Credit 3.

Prerequisite: Grade of C or better in ENGL 3400 or prior consent of the instructor. Guided practice in the craft and art of writing poetry. Course may be repeated provided the content is different each time.

ENGL 4511 (5511) - Introduction to Descriptive Linguistics

Cross-listing: LING 4511 (5511)

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235, or ENGL 2330 is waived for ENGL and SEEN majors. Introduction to descriptive analysis of language: phonology, morphology, lexicon, and syntax.

ENGL 4521 (5521) - History of the English Language

Cross-listing: LING 4521 (5521)

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235, or ENGL 2330 is waived for ENGL and SEEN majors. History of the language from its origins to the present; emphasis upon historical development of English sounds, word structure, and syntax.

ENGL 4531 (5531) - Grammar and Language

Cross-listing: LING 4531 (5531)

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Grammatical structure of English in relation to dialect and register with some emphasis on historical and potential changes in grammar.

ENGL 4541 (5541) - Topics in Linguistics/Language

Cross-listing: LING 4541 (5541)

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Examination of specific aspects of language and/or linguistic study, such as Old and Middle English, the language of dialect literature or American English dialects. Course may be repeated provided the content is different each time.

ENGL 4551 (5451) - Introduction to Rhetoric: Theory and Practice

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. The course introduces students to rhetoric--history and special topics.

ENGL 4561 (5561) - American English

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. This class will examine American English from multiple cultural and linguistic angles and allow the students to develop their own understanding of how the language around them shapes their lives.

ENGL 4610 (5610) - Novel

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130

or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Theory of the novel and a study of selected novels.

ENGL 4620 (5620) - Poetry: Form, Genre, Theory

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. The study of poetry written in English and translated from other languages, with attention to such topics as poetic movements, styles, trends, the evolution, and development of forms.

ENGL 4630 (5630) - Literary Criticism and Theory

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Historical and thematic studies of critical and theoretical trends and issues.

ENGL 4640 (5640) - Modern and Contemporary Drama

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Study of dramatic texts and performance issues from the late 19th century to the present.

ENGL 4650 - The Graphic Novel.

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, 2235, and 2330 are prerequisites for all upper-division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2230 or ENGL 2330 is waived for ENGL majors and for SEEN majors. Theory of comics-format texts and study of selected graphic novels.

ENGL 4712 (5712) - African American Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The

prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Studies of African American literature and culture, both oral and printed.

ENGL 4713 (5713) - Native American Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Studies of Native American literature and culture, both oral and printed.

ENGL 4720 (5720) - Continental Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Study of major works and writers from the European continent.

ENGL 4731 (5731) - Approaches to Women and Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Studies of major women writers or images of women in literature. Course may be repeated provided the course content is different each time.

ENGL 4741 (5741) - Science and Culture

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Cultural influences on scientific discourse and literature about science.

ENGL 4751 (5751) - Topics in Non-Western Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The

prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Focuses on literature written outside of European literary traditions, either written in or translated into English. Course may be repeated for credit as long as the topic is different.

ENGL 4810 (5810) - Introduction to Folklore

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Generic survey of folklore; possible definitions, varieties, meanings, and methods of study. Stress on verbal traditions (tales, songs, and beliefs).

ENGL 4820 - Upper Cumberland Folklore

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Folklore of the Upper Cumberland, with emphasis on relationships between regional material and the broad perspective of the humanities.

ENGL 4830 (5830) - Southern Literature

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Major writers of the South, with emphasis on regional themes and on the Southern literary renaissance.

ENGL 4840 (5840) - The Gothic Tale of Terror

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Readings in Gothic poetry and prose.

ENGL 4911 (5911) - The Literature of Science

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one

course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Topics in literary non-fiction written by scientists.

ENGL 4921 (5921) - Literature and Technology

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Study of literature which deals with the impact of technology on society.

ENGL 4931 (5931) - Literature and the Environment

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. A study, through literature, of the relationship between humans and the environment.

ENGL 4970 (5970) - Professional Communication II

Cross-listing: PC 4970 (5970)

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all Upper Division courses. The prerequisite for Upper Division courses of ENGL 2130, ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. A continuation of ENGL 3250 with emphasis on more complex reports.

ENGL 4981 (5980) - Topics

Credit 1, 2, or 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Coursework or directed individual research in any area where there is no other course offering.

ENGL 4982 (5982) - Topics

Credit 1, 2, or 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL

2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Coursework or directed individual research in any area where there is no other course offering.

ENGL 4983 (5983) - Topics

Credit 1, 2, or 3.

Prerequisite: ENGL 1010 and ENGL 1020 and one course from among ENGL 2130, ENGL 2235, and ENGL 2330 are prerequisites for all upper division courses. The prerequisite for upper-division courses of ENGL 2130 or ENGL 2235 or ENGL 2330 is waived for ENGL and SEEN majors. Coursework or directed individual research in any area where there is no other course offering.

ENGL 4990 (5990) - Internship

Credit 3.

Prerequisite: Junior or Senior status, at least two ENGL courses at the 3000-level or above, and consent of chair or internship coordinator. This course is for English majors only. Part-time employment in a business or institution setting related to a student's academic and career goals, and contextualized by guided written reflection with a faculty member. Cannot be taken in place of core English courses (ENGL 3000, ENGL 3810, ENGL 3820, ENGL 3910, ENGL 3920, ENGL 4121, ENGL 4995).

ENGL 4995 - Senior Colloquium

Lec. 3. Credit 3.

Prerequisite: Senior Standing as an English BA major; completion of all required ENGL 3000-level courses. Intensive study of a theme or period selected by the instructor, with an emphasis on research, writing, discussion, and presentation.

English as a Second Language

ESL 1010 - English as a Second Language

Lec. 3. Credit 3.

English for non-native speakers with emphasis on pronunciation, idioms, syntax, and vocabulary. Additional work in the language laboratory at the discretion of the instructor. This course is required for all students whose native language is not English, Undergraduate and Graduate, in their first two semesters at Tennessee Tech unless specifically exempted by high TOEFL and placement test results. A minimum grade of C in ESL 1010 is a prerequisite to ESL 1020. A minimum grade of C in ESL 1020 is a prerequisite to ENGL 1010. ESL

1010 and ESL 1020 do not satisfy the ENGL 1010 and ENGL 1020 communication requirement of the General Education core, nor do these courses count toward any degree requirements.

ESL 1020 - English as a Second Language

Lec. 3. Credit 3.

English for non-native speakers with emphasis on pronunciation, idioms, syntax, and vocabulary. Additional work in the language laboratory at the discretion of the instructor. This course is required for all students whose native language is not English, Undergraduate and Graduate, in their first two semesters at Tennessee Tech unless specifically exempted by high TOEFL and placement test results. A minimum grade of C in ESL 1010 is a prerequisite to ESL 1020. A minimum grade of C in ESL 1020 is a prerequisite to ENGL 1010. ESL 1010 and ESL 1020 do not satisfy the ENGL 1010 and ENGL 1020 communication requirement of the General Education core, nor do these courses count toward any degree requirements.

English as a Second Language Pedagogy

ESLP 3100 - ESL Pedagogy: Secondary Education Methodology and Materials

Lec. 1. Credit 1.

This course is an integration of concepts fundamental to meeting the needs of students with diverse backgrounds. Particular focus will be given to language and cultural diversity in EL populations in secondary education settings. The course will explore: research-based instructional strategies, language acquisition theories, stages of language acquisition, WIDA resources and requirements, ESL assessment, laws, and culturally relevant education.

ESLP 4100 (5100) - ESL Methodology and Materials for PreK-12

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Current approaches, methodologies, techniques, and materials for teaching ESL primarily in preK-12 situations; developing literacy skills appropriate for age and language proficiency levels.

ESLP 4200 (5200) - ESL Assessment: Reading and Writing

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. ESLP 4100 (5100). Assessing proficiency for ESL placement and eventual integration into school curriculum mainstreaming with special emphasis on

language literacy skills: reading and writing. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

ESLP 4300 (5300) - Field Experience in ESL

Credit 3.

Prerequisite: Full admission to the Teacher Education Program; ESLP 4100 (5100) or consent of instructor. Teaching ESL in preK-12 under supervision of experienced ESL staff: writing objectives, planning lessons, materials evaluation, testing.

Entrepreneurship

ENTR 1810 - Governor's School for Innovation and Entrepreneurship

Lec. 3. Credit 3.

Prerequisite: Enrollment is restricted to Governor's School for Innovation and Entrepreneurship participants. The course will introduce students to the principles, problems, and practices in business leadership. The focus of the class will be on the students developing a business plan for a company.

ENTR 3200 - Entrepreneurial Mindset

Cross-listing: (MKT)

Lec. 3. Credit 3.

Prerequisite: Enrollment in Junior- or Senior-level ENTR courses requires Junior Standing. All business majors must have completed the Basic Business Program. This introductory course provides a framework of entrepreneurial thinking and acting. Specifically, this course aims to help students become more customer-oriented and opportunity-driven in acting on innovative ideas, serve as change agent, and learn leveraging resources while mitigating and managing risks. It further provides a basic infrastructure in business, so students can accomplish the eventual transition of successfully managing, financing and marketing the business venture and products/services in increasingly competitive global market places/spaces.

ENTR 4500 - Innovation and Entrepreneurship: Lean Launchpad

Lec. 3. Credit 3.

Prerequisite: Students must have Junior or Senior standing or approval of the instructor. Lean Launchpad focuses on innovating and evolving a product or service into a viable business model. The curriculum is structured around the Lean Launchpad program where student teams organize and develop their "business canvas." Enrollment in junior- or senior-level ENTR courses requires junior standing. All business majors must have completed the Basic Business Program.

ENTR 4900 - Special Topics in Entrepreneurship

Lec. 3. Credit 3.

Prerequisite: Consent of instructor. Current topics in Entrepreneurship. All business majors must have completed the Basic Business Program.

Environmental and Sustainability Studies

ESS 1020 - Connections to Environmental and Sustainability Studies

Lec. 1. Rec. 2. Credit 1.

The course is designed to strengthen the student's connection to TTU by engaging the student in meaningful academic and nonacademic activities both in and out of the classroom. It emphasizes critical thinking in the formation of academic and social goals and support groups, and in self-management and development of study skills.

ESS 1100 - Introduction to Environmental Studies

Lec. 3. Credit 3.

This course is an introductory course to the field of environmental studies. Environmental problems are complex, involving interconnections between people, ecosystems and the biosphere. The solution to these problems requires an understanding of diverse areas of study, including chemistry, biology, ecology, toxicology, hydrology, psychology, sociology, anthropology, economics, ethics, history, law, politics, literature and communication.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences).

ESS 1200 - Environmental Research I

Lec. 1. Lab. 4. Credit 3.

An introductory practical course on research methods in the environmental sciences and allied fields. Students will be paired with a research mentor and will actively participate in an undergraduate research project.

ESS 2200 - Environmental Research II

Lec. 1. Lab. 4. Credit 3.

Prerequisite: ESS 1200; or previous research experience plus consent of instructor. An intermediate-level course on conducting research in the environmental sciences and allied fields. Students will be paired with a research mentor and will conduct an undergraduate research project, which may be a new project or a continuation of a research project initiated in ESS 1200; however, students will be more involved in

the research design and implementation than in ESS 1200.

ESS 2300 - Environmental Science Communication

Lec. 2. Lab. 3. Credit 3.

Prerequisite: ESS 1200 or ESS 2200; or previous research experience plus consent of instructor. A course on developing oral and written scientific communication skills necessary to convey research findings in a variety of formats used by professionals in the environmental sciences and allied fields. Students will learn basic principles of scientific writing and the process of developing oral and poster presentations for conferences, and manuscripts for scientific journals.

ESS 3000 - Introduction to Environmental Law

Lec. 3. Credit 3.

Prerequisite: Junior Standing or consent of instructor. The course presents the basics of environmental laws from local governments to international agreements emphasizing U.S. laws and the roles of federal and state agencies in our domestic legal. The interaction of law with policy formulation, implementation and enforcement, and opportunities for citizen involvement are reviewed.

ESS 3710 - Chemistry and the Environment

Lec. 3. Credit 3.

Prerequisite: CHEM 1010. Concepts of environmental chemistry that include organic chemistry, polymer chemistry, the chemistry of the earth, water and air, biochemistry, and energy. A grade in ESS 3710 may be accepted as a replacement for a previous grade in CHEM 3710.

ESS 4001 - Society and the Environment: Capstone Experience Part 1.

Lec. 3. Credit 3.

Prerequisite: Senior Standing. The course is the first semester of a two-semester sequence that will be a case study to learn about the environmental issues and possible solutions. The first semester course will address interdisciplinary approaches to environmental issues, research methods and grantsmanship.

ESS 4002 - Society and the Environment: Capstone Experience Part 2.

Lec. 3. Credit 3.

Prerequisite: ESS 4001. The course topic will focus on a specific environmental issue facing society. The course

will be conducted as a case study to learn about the environmental issues and possible solutions.

ESS 4091 - Special Topics

Lec. Credit 1.

Prerequisite: Consent of instructor and school director. Upper division level study in a specific topic related to Environmental & Sustainability Studies. Course may be repeated if topic is different. No more than a combined total of 9 hours of ESS 4091, 4092, and 4093 may be used for degree.

ESS 4092 - Special Topics

Lec. Credit 2.

Prerequisite: Consent of instructor and school director. Upper division level study in a specific topic related to Environmental & Sustainability Studies. Course may be repeated if topic is different. No more than a combined total of 9 hours of ESS 4091, 4092, and 4093 may be used for degree.

ESS 4093 - Special Topics

Lec. Credit 3.

Prerequisite: Consent of instructor and school director. Upper division level study in a specific topic related to Environmental & Sustainability Studies. Course may be repeated if topic is different. No more than a combined total of 9 hours of ESS 4091, 4092, and 4093 may be used for degree.

ESS 4200 - Advanced Environmental Research

Lec. 1. Lab. 4. Credit 3.

Prerequisite: ESS 2200 and ESS 2300; or previous research experience and consent of instructor. Prerequisite or corequisite: MATH 3070 or upper-division statistics course (e.g. AGBE 4210, BIOL 4220). An advanced course on conducting research in the environmental sciences and allied fields. Students will work with a research mentor as in ESS 1200 and ESS 2200, but the student will have a more prominent and independent role in experimental design, data analysis, scientific writing, and communicating research findings at a conference or by submitting a manuscript for publication.

ESS 4300 - Environmental Management System

Lec. 3. Credit 3.

The course is a case study that presents the student with the techniques, technologies, regulations and strategies that define industrial pollution prevention.

ESS 4900 - Internship

Credit 3.

Prerequisite: At least 9 hours in ESS coursework and Junior Standing.

Students are placed in a public or private agency or organization which is compatible with their interests in environmental and sustainability studies. (May be taken up to three times (9 hours) if assignments are with different organizations or with different divisions within an organization.)

Exercise Science, Physical Education and Wellness

EXPW 1021 - Connection to Exercise Science, Physical Education and Wellness

Lec. 1. Credit 1.

This course is designed to give the student an overview of the University as well as introduce the various career paths that are possible with a degree in Exercise Science. The goal for this class is to help students to connect with one another, the EXPW family, campus, and community.

EXPW 1022 - Introduction to Exercise Science, Physical Education and Wellness

Lec. 2. Credit 2.

This course is designed to provide students with relevant information about the Exercise Science Department and educational opportunities within as well as historical background, general scope, occupational opportunities, and principles and objectives of exercise science, and related fields/occupations.

EXPW 1110 - Introduction to Athletic Training

Lec. 1. Credit 1.

This course will define and explore the profession of Athletic Training. Critical tasks, domains, essential competencies, and associated knowledge that Athletic Trainers should possess to perform the required functions satisfactorily will be identified and explored. The various job settings, career paths, and educational requirements of Athletic Trainers will be investigated. Areas to be covered include: the history of Athletic Training, the role of the Athletic Trainer in Sports Medicine, athletic training facility organization, blood borne pathogens and OSHA, administrative concepts, legislative and legal concerns, basic medical terminology, and record keeping.

EXPW 1120 - Introduction to Occupational Therapy

Lec. 1. Credit 1.

This course provides interested students the fundamental concepts in Occupational Therapy (OT). It

presents a broad overview and history of the profession while discussing current professional roles within the practice setting, current issues and trends in the field, and treatment development based on the theoretical models of practice applicable to OT. Students will examine the OT process, ethics in regard to practice, interdisciplinary team process, and meaningful occupation in various contexts of practice.

EXPW 1130 - Introduction to Physical Therapy

Lec. 1. Credit 1.

This course provides interested students the fundamental concepts in Physical Therapy (PT). It presents a broad overview and history of the profession while discussing current professional roles within the practice setting, current issues and trends in the field, and treatment development based on the theoretical models of practice applicable to PT. Students will examine the PT process, ethics in regard to practice, interdisciplinary team process, and meaningful occupation in various contexts of practice.

EXPW 1150 - Care and Prevention of Athletic Injuries

Lec. 3. Credit 3.

This course introduces basic knowledge of the prevention, recognition, management, and rehabilitation of common athletic injuries. Topics will include sports nutrition, protective equipment, handling emergency situations, injury assessment, basic injury rehabilitation, and recognizing various types of sports injuries. In addition, students will learn basic wrapping and taping techniques.

EXPW 2001 - Orthopedic Assessment I

Lec. 3. Clinical 1. Credit 4.

Prerequisite: Sophomore Standing. Corequisite: BIOL 2010. This course is designed for advanced study of the etiology, pathology, and clinical signs and symptoms of common injuries to the lower extremities and lumbar spine. Students will learn the elements of the evaluation, assessment, management, and rehabilitation of common athletic injuries in the lower extremities and lumbar spine region. Emphasis is placed on clinical evaluation of injuries by the Athletic Trainer. Students will have opportunities for demonstration and hands-on experience related to skills learned in the classroom. Clinical experiences are designed to evaluate specific clinical competencies introduced in this course. Students will participate in clinical instruction and must demonstrate proficiency in the clinical competencies. Students must work in the field with a Certified Athletic Trainer in the 30-hour supervised clinical/field experience.

Students with the Pre-Athletic Training concentration

must pass this class with a "B" or better to continue in the program.

EXPW 2002 - Orthopedic Assessment II

Lec. 3. Clinical 1. Credit 4.

Prerequisite: Sophomore standing, EXPW 2001 and BIOL 2010. Corequisite: BIOL 2020. This course is designed for advanced study of the etiology, pathology, and clinical signs and symptoms of common injuries to the upper extremities, cervical and thoracic spine, and abdomen. Students will learn the elements of the evaluation, assessment, management, and rehabilitation of common athletic injuries in these anatomical regions. Emphasis is placed on clinical evaluation of injuries by the Athletic Trainer. Students will have opportunities for demonstration and hands-on experiences directly related to the skills learned in the classroom.

Clinical experiences are designed to evaluate specific clinical competencies introduced in the classroom. Students will participate in clinical instruction and must demonstrate proficiency in the clinical competencies. Students must work in the field with a Certified Athletic Trainer in the 30-hour supervised clinical/field experience. Students with the Pre-Athletic Training concentration must pass this class with a "B" or better to continue in the program.

EXPW 2015 - Concepts of Health and Wellness

Cross-listing: HEC 2015.

Lec. 3. Credit 3.

Exploration of the impact of health and wellness as it affects personal behavior, social development, and quality of life for individuals, families and communities. Analysis of behavioral change theories regarding social context of individual human behavior and examination of current social and behavioral science research within the context of health and wellness.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences).

EXPW 2100 - Life Guard Training

Credit 2.

This course is designed to prepare students to perform the duties and responsibilities of a life guard of swimming pools and at protected open water non-surf beaches. Satisfactory completion can lead to lifeguard certification.

EXPW 2130 - Concepts of Comprehensive Health

Lec. 3. Credit 3.

This course is designed to provide current information related to all areas of personal health to the student.

This is typically a survey of the areas and aspects of health and wellness.

EXPW 2150 - Human Sexuality

Lec. 3. Credit 3.

This course is a survey of the dynamics of human sexuality as well as an identification and examination of basic issues in human sexuality as relating to the larger society. Topics include: current/historical issues, attitudes, and perspectives towards sexuality; anatomy and physiology of male and female reproductive systems; human sexual response cycle; conception/childbirth; contraception; sexually transmitted infections; sex and the law; sexual expression and variation; and typical and atypical sexual behaviors.

EXPW 2160 - Drug Use and Abuse

Lec. 2. Credit 2.

The study of legal and illegal drugs and their relationship to contemporary society.

EXPW 2170 - Introduction to Sport Management

Lec. 3. Credit 3.

This course is an overview of the fundamental principles of management and administration of sport programs. The combination of theory and practice related to legal and ethical issues, marketing, and organizational structure of sport-related services and facilities is covered.

EXPW 2200 - Leadership Development in Exercise and Sport

Lec. 3. Credit 3.

This course combines leadership theory with practical application, equipping students with the knowledge and skills needed for leadership in sports, teaching and exercise science related fields/professions. Leadership is explored as an integral component of a student's career and life plan, focusing on the value of developing a philosophy for self-leadership that will help them move toward influencing others.

EXPW 2430 - First Aid, Safety and CPR

Lec. 1. Lab. 2. Credit 2.

This course consists of practice and application of the most current standards and accepted principles of CPR, safety and first aid. Students have opportunity to obtain certification through the American Red Cross.

EXPW 2440 - Safety and Accident Prevention

Lec. 2. Credit 2.

Safety problems in the home, school, public places, highways and the specific problems of industry along with an emphasis on proper attitudes toward safe driving and safety in general.

EXPW 3000 - Professional Development and Career Planning

Lec. 1. Credit 1.

This course will lead students through the necessary steps of locating and applying to graduate programs and/or career opportunities by preparing quality resumes, cover letters, and related application documents as well as interview techniques, questions and practice for candidate success.

EXPW 3001 - Therapeutic Rehabilitation and Modalities

Lec. 3. Credit 3.

Prerequisite: EXPW 2001 and EXPW 2002. Corequisite: EXPW 3011. This course explores the principles in planning and implementation of rehabilitation programs for injured athletes. Emphasis is placed on development of comprehensive, individualized rehabilitation protocols using a combination of therapeutic modalities and exercises. Specifically, students will plan and implement sport-specific functional rehabilitation programs based on predetermined therapeutic goals and objectives. Students will have opportunities for demonstration and hands-on learning of the skills learned in the classroom.

EXPW 3006 - Medical Aspects of Athletic Training

Lec. 3. Credit 3.

Prerequisite: EXPW 3001 and HEC 2220. This course includes the advanced study in Athletic Training of general medical conditions and disabilities, head and facial injuries, and internal injuries in the athlete. Students will use skills developed in previous courses to perform general medical examinations within the scope of Athletic Training practice and examine the etiology of illnesses and diseases present in athletic populations.

EXPW 3011 - Clinical I

Clinical 3. Credit 3.

Corequisite: EXPW 3001. This clinical experience is designed to provide opportunities for students to evaluate specific clinical competencies introduced in the previous Athletic Training classes. Students will receive clinical instruction and must demonstrate proficiency in the clinical competencies. This course provides an opportunity for the athletic training student to practice and observe athletic training skills in a clinical setting. Students will assist a Certified Athletic Trainers with various sports and teams in the area as well as observe

in a Physical Therapy clinic. Students are required to complete a minimum of 120 clinical hours under the direct supervision of an accredited preceptor.

EXPW 3012 - Educational Gymnastics, Dance & Fitness

Lec. 1. Credit 1.

This course provides experience for the candidate to become familiar with educational gymnastics, dance and fitness and how to teach each of these in elementary, middle and high school settings.

EXPW 3032 - Exercise Prescription for Fitness and Wellness

Lec. 3. Credit 3.

Prerequisite: Junior or Senior Standing in EXPW. The purpose of this course is to assist students with exercise testing decision-making and techniques as well as to determine appropriate exercise programming for desired fitness goals. Students will learn field and lab assessments of health-related physical fitness and design exercise programs to target specific outcomes in various populations.

EXPW 3050 - Water Safety Instructor's Course

Credit 2.

Instruction in senior lifesaving; parts one and two of the instructor's training course in water safety.

EXPW 3070 - Lifetime Wellness and Leisure Activities

Lec. 2. Lab. 2. Credit 3.

This course is designed to help students identify and develop skills needed to be safe and successful in lifetime wellness and leisure activities. The goal is for students to find activities that they enjoy that will lead to a lifetime of personal physical fitness.

EXPW 3091 - Coaching Individual Sports

Lec. 2. Lab.1. Credit 3.

Prerequisite or corequisite: EXPW 3180. This course is a study of philosophies, skills, knowledge, strategies and leadership associated with coaching selected individual sports.

EXPW 3092 - Coaching Team Sports

Lec. 3. Credit 3.

Prerequisite: EXPW 3180. This course is designed to examine the theory and practice of coaching volleyball, basketball, baseball/softball and soccer.

EXPW 3132 - School Health Pedagogy and Practicum

Lec. 2. Lab. 1. Credit 3.

Prerequisite: EXPW 2130 or EXPW 2015 and Physical Education licensure major. This course is designed to provide the student multiple opportunities to examine Health or Lifetime Wellness curriculum design, gain familiarity with instructional methodology and design as well as participate in supervised practicum. experience in the secondary health or lifetime wellness classroom. Students develop lesson plans according to the State of Tennessee standards for Lifetime Wellness using the EdTPA lesson plan model. Lesson/learning assessment is also included as a core component of this course.

EXPW 3170 - Motor Learning

Lec. 3. Credit 3.

This course is designed so that students can learn about the process of improving motor skills through practice, with long-lasting changes in the capability for responding. Through work in the classroom and lab-like experiences the processes and principles of motor learning will be examined.

EXPW 3180 - Introduction to Coaching

Lec. 3. Credit 3.

This course provides candidates with an exposure to the application of theoretical aspects of coaching including philosophy, teaching, training, management, ethics, gender and culture.

EXPW 3300 - Sports Officiating

Lec. 2. Credit 2.

Detailed techniques and methods of sports officiating involving rule interpretation and ethical character.

EXPW 3301 - Sports Officiating: Spring Sports

Lec. 2. Credit 2.

This course is intended to teach the student the knowledge of the rules, duties, responsibilities, signals, positioning, and philosophy of a sports official through classroom and practical officiating experience for the sports of tennis, baseball, and softball. This class will require 15 hours of practical "lab" experience outside of the classroom and in addition to the lectures. Lecture length will be adjusted to accommodate for outside class requirements.

EXPW 3310 - Professional Preparation

Lec. 1. Credit 1.

This course is designed for every student to benefit from

learning about the graduate school application process, preparing documents for graduate school applications as well as first time on the professional job market, learning to swell one's self to potential employers or others who are reviewing applications and/or interviewing. Cover letters, follow-up procedures, professional philosophy and writing a winning resume are topics to be covered.

EXPW 3410 - Lifespan Motor Development

Lec. 3. Credit 3.

This course is an introduction to the developmental aspects of human motor behavior across the life span, essentially observing movement from birth and throughout life, identifying how and why movement happens the way it does and why movement changes throughout life. The main focus is on characteristics of the stages of motor development as well as issues related to the physical growth, and development.

EXPW 3560 - Techniques and Tactics of Sports

Lec. 1. Lab. 2. Credit 2.

This course is designed to explore a variety of sports. Students will examine including required skills required for game play, rules of play, offensive and defensive strategies and more. Participation in a variety of sports is required.

EXPW 3565 - Physical Activity and Sport Skills

Lec. 2. Lab. 2. Credit 3.

This course is designed to explore a variety of physical activities and sports including dance, gymnastics, sports and fitness. Students will learn skills necessary to participate, rules, safety measures and more. Physical Education licensure students must make a B or better to advance to the methods courses.

EXPW 3660 - Curriculum in Physical Education

Lec. 2. Credit 2.

Prerequisite: Full admission to the Teacher Education Program. This course examines various curriculum models in physical education and prepares teacher candidates to construct and evaluate curricula in physical education.

EXPW 3720 - Instructional Strategies

Lec. 3. Credit 3.

This course is designed for students who plan to teach physical education to identify specific strategies that will be beneficial while teaching in the physical education classroom. The philosophy of teaching physical education, models of instruction and administration of

physical education programs, and methods of planning and managing physical education classes is included.

EXPW 4001 - Senior Seminar

Lec. 3. Credit 3.

Prerequisite: Senior standing and EXPW 4730. This class is designed for students to develop skills and knowledge base that will aid the student while conducting and critically reviewing research in Athletic Training. Students will prepare and present a research project on a topic approved by the instructor. In addition, this course will provide the student the opportunity to explore and evaluate CAATE accredited Athletic Training programs and prepare students for the application and selection process.

EXPW 4011 - Clinical II

Clinical 3. Credit 3.

Clinical experiences are designed to evaluate specific clinical competencies introduced in the previous Athletic Training classes. This course provides opportunities for the athletic training student to practice and observe athletic training skills in a clinical setting. Students must demonstrate proficiency in advanced clinical competencies and are expected to perform the skills learned in the previous semesters. Students are required to seek out and secure individual placement in a clinical setting such as university or high school athletic training room, physical therapy clinic, urgent care, emergency care, etc. Students must complete a minimum of 120 clinical hours under the supervision of an approved preceptor and placement must be approved by the instructor.

EXPW 4032 - Training for Performance

Lec. 3. Credit 3.

Prerequisite: Junior or Senior Standing. The purpose of this course is to expose students to theory that dictates physical training for sport performance as well as the practical application of physical training and evaluation. Students will participate in various in-class evaluation, practical training, and prescription activities. The course will also serve as a beginning preparatory course for the NSCA CSCS examination.

EXPW 4042 - Health Promotion

Lec. 3. Credit 3.

This course is an evaluation of various physical activity behavior change models, assessment of health promotion programs and evaluation standards. Topics include: health status; historical and current issues in health promotion; philosophical foundations of health

promotion; intrapersonal health behavior change theories; CHES; work settings for health educators; and ethics in health promotion.

EXPW 4171 - Exercise and Sport Psychology

Lec. 3. Credit 3.

Prerequisite: Junior or Senior Standing in EXPW and PSY 1030 or permission of instructor. This course is designed to provide an introduction to the field of exercise and sport psychology, history, theory, and psychological techniques that hinder or enhance exercise, rehabilitation and sport performance. Students should be able to understand psychological techniques that help or hinder their own performance in sport, exercise and other areas, i.e., academics, career, etc.

EXPW 4210 - Gerontology

Lec. 3. Credit 3.

Prerequisite: Junior or Senior Standing. The course is designed to provide an introduction to new ways of thinking about aging. The content will center on the social, psychological and physical dimensions of aging. The material will examine the aging process experienced by older individuals explore the aging population and the effects on society as a whole.

EXPW 4290 - Accident Prevention

Credit 2.

Emphasis on proper attitudes toward safe driving and safety in general.

EXPW 4300 - Basic Driver and Traffic Safety Education

Credit 2.

Actual experiences in simulation and behind-the-wheel driver education.

EXPW 4310 - Advanced Driver and Traffic Safety Education

Credit 2.

Current materials and administration of simulation and behind the wheel driver education programs.

EXPW 4420 - Kinesiology

Lec. 3. Credit 3.

Prerequisite: BIOL 2010 or BIOL 2350. This course is the advanced study of the anatomy of the muscular, skeletal and articular systems, and basic biomechanics and applications related to training and performance of athletes.

EXPW 4440 - Physiology of Exercise

Lec. 3. Credit 3.

Prerequisite: BIOL 2350 or BIOL 2010. During this class, students will examine the physiological effects of exercise, sports, and other stresses on the various systems of the human body. Application of principles to physical fitness, physical education, and athletics is included.

EXPW 4442 - Advanced Exercise Physiology

Lec. 3. Credit 3.

Prerequisite: EXPW 4440 with grade of B or better. This course is the study of the immediate and long-term effects of physical activity on the acute and chronic effects of physical activity on body systems with regard to the neuromuscular, energy, respiratory and cardiovascular systems with reference to exercise evaluation and prescription.

EXPW 4520 - Adapted Physical Activity and Sport

Lec. 2. Lab. 2. Credit 3.

The purpose of this course is to guide students in developing knowledge of current trends and concepts in adapted physical education and sport as well as examining various services, programs and requirements for individuals with disabilities. By the end of the course students should display acceptable levels of confidence in screening children who may need adapted physical education/activity as well as working with and evaluating special needs children. Design and implementation of adapted physical activity & sport programs to meet unique needs of individuals will also be required.

EXPW 4530 - Organization and Administration of Interschool Athletics

Lec. 3. Credit 3.

This course is a study of issues faced by administrators, principals, athletic directors and coaches.

EXPW 4540 - Ethical Issues in Sport

Lec. 3. Credit 3.

Prerequisite: Junior or Senior Standing. This course is designed to assist students in self-evaluating, examining, and developing a philosophy, values, and moral reasoning skills. Major moral/ethical issues within sports will be researched and discussed. Students will experience the ethical decision-making process through opportunities for critical analysis drawing upon their philosophical values.

EXPW 4550 - Sport Governance

Lec. 3. Credit 3.

Prerequisite: Junior or Senior Standing. This course is designed for students interested in the growing problems of sports litigation. Amateur and professional aspects of sports are covered from four major perspectives: (1) judicial review of athletic associations; (2) eligibility rules and disciplinary measures; (3) equal opportunity provisions; and (4) tort liabilities. Specific topics include due process, anti-trust, and free speech, coed competition, duty of ordinary care, and of care owed athletes and spectators, injuries, assumption of risk, and contributory negligence. The course stresses the application of principles of law to the sports setting. Actual court cases relating to these principles are examined.

EXPW 4560 - Facility Planning and Management

Lec. 3. Credit 3.

Prerequisite: Junior or Senior Standing. This course is an overview of all elements involved in sport event management. One key component of the course includes planning, organizing, marketing, and conducting a mock event during the semester.

EXPW 4570 - Fundraising/Revenue Generation in Sport

Lec. 3. Credit 3.

This course is designed to provide the student with both theoretical and practical applications of fundraising and generating revenue in the sports industry. The focus will be geared toward successful fundraising in sport programs at the educational, commercial and professional levels.

EXPW 4580 - Current Issues in Sport Management

Lec. 3. Credit 3.

The content of this course will vary according to current research, topics and publications in areas of Sport Administration and Sport Management. Students will be delving into contemporary issues being studied and presented in peer reviewed and professional literature in-order to gain relevant understanding of happenings in the industry as they arise.

EXPW 4711 - Analysis and Development of Sport Skills

Lec. 2. Lab. 2. Credit 4.

Prerequisite: Physical Education licensure major and acceptance into Teacher Education. This course includes multiple opportunities for candidates to examine and develop instructional methods related to planning, teaching and analyzing skills appropriate for secondary

physical education. Candidates will prepare and teach multiple lessons using the State of Tennessee standards for physical education in grades 6-8 or 9-12. The EdTPA lesson plan template and assessment process is utilized during this course. Practicum hours are required for the completion of this course. A grade of "B" or better is required to progress to Residency.

EXPW 4712 - Methods of Teaching Secondary Physical Education

Lec. 3. Credit 3.

Prerequisite: Physical education licensure major; full admission into the teacher education program; completion of EXPW 3720, EXPW 3565 with grade of "B" or better. Corequisite: EXPW 4750. This course provides the teacher candidate opportunities to examine and develop instructional methods related to planning, teaching and analyzing skills appropriate for secondary physical education. Candidates will prepare multiple standards-based lesson plans using the state standards for physical education in grades 6-8 and 9-12 and the edTPA lesson plan template. Understanding of content from this course is assessed on the Praxis II licensing exam. The successful candidate will have a grade of "B" or better to progress to Residency I.

EXPW 4721 - Methods of Elementary Movement

Lec. 2. Lab. 2. Credit 4.

Prerequisite: Physical Education licensure major and acceptance into Teacher Education. This course includes multiple opportunities and experiences for the physical education candidate to obtain relevant knowledge about teaching physical education that is elementary school specific. Various instructional methods for teaching motor skills and movement concepts, including rhythms and gymnastics are covered. Candidates will prepare and teach multiple lessons using the State of Tennessee standards for physical education in grades K-2 or 3-5. The EdTPA lesson plan template and assessment process is utilized during this course. Practicum hours are required for the completion of this course. A grade of "B" or better is required to progress to Residency.

EXPW 4722 - Methods of Teaching Elementary Physical Education

Lec. 3. Credit 3.

Prerequisite: Physical education licensure major; full admission into the teacher education program; completion of EXPW 3720, EXPW 3565 with grade of "B" or better. Corequisite: EXPW 4752. The teacher candidate will gain important and relevant knowledge and experience related to teaching elementary physical education. A variety of instructional methods for

teaching motor skills and movement concepts are included. Candidates will prepare multiple lesson plans using the state standards for K-5 physical education. The edTPA lesson plan template and assessment process is utilized during this course. Understanding of content from this course is assessed on the Praxis II licensing exam. The successful candidate will have a grade of "B" or better to progress to Residency I.

EXPW 4730 - Assessment and Evaluation in Exercise Science

Lec. 3. Credit 3.

The purpose of this course is to direct students to select/construct, administer, score, and evaluate tests specific to human performance. Students will be exposed to standardized tests and will explore the uses and development of authentic tests. Each class period consists of lecture and administration of assessments.

EXPW 4731 - Assessment in the Physical Education Classroom

Lec. 2. Credit 2.

Prerequisite: Full admission to the Teacher Education Program. This course provides teacher candidates with multiple opportunities to construct and administer various assessment measures and to interpret data from assessing student performance and learning in physical education. The EdTPA assessment tool – TASK 3 is examined. Use of rubrics, administering standardized fitness tests, administering various skills tests and analyzing the results is included.

EXPW 4751 - Secondary Physical Education Practicum

Lab. 4. Credit 2.

Prerequisite: Physical education licensure major; full admission into the teacher education program; completion of EXPW 3720, EXPW 3565 with grade of "B" or better. Corequisite: EXPW 4712. The teacher candidate will observe, assist and teach in the elementary physical education setting. The successful candidate will have a grade of "B" or better to progress to Residency I.

EXPW 4752 - Elementary Physical Education Practicum

Lab. 4. Credit 2.

Prerequisite: Physical education licensure major; full admission into the teacher education program; completion of EXPW 3720 and EXPW 3565 with a grade of B or better. Corequisite: EXPW 4722. The teacher candidate will observe, assist, and teach in the

elementary physical education setting. The successful candidate will have a grade of B or better to progress to Residency I.

EXPW 4760 - Functional Movement

Lec. 3. Credit 3.

Prerequisite: EXPW 3032 with a grade of B or better. This course is designed to provide understanding of the importance of functional movements in life. Functional movements mimic motor recruitment patterns that are found in everyday life. Students will learn that functional movements are mechanically sound, can help alleviate injury, and elicit a high neuroendocrine response.

EXPW 4810 - Field Experience

Lab. 1-4. Credit 1-4.

Prerequisite: Successful completion of course requirements in the core requirements. Three to nine hours of credit may be earned. This course may be taken independent of course work as a culminating experience for three hours credit. Participation in on-the-job experiences will be provided in a wide range of hosting agencies, institutions, and clinics. Requirements for course completion will vary depending on the number of credit hours to be earned.

EXPW 4820 - Field Experience

Lab. 1-4. Credit 1-4.

Prerequisite: Successful completion of course requirements in the core requirements. Prerequisite: Successful completion of course requirements in the core requirements. Three to nine hours of credit may be earned. This course may be taken independent of course work as a culminating experience for three hours credit. Participation in on-the-job experiences will be provided in a wide range of hosting agencies, institutions, and clinics. Requirements for course completion will vary depending on the number of credit hours to be earned.

EXPW 4830 - Field Experience

Lab. 1-4. Credit 1-4.

Prerequisite: Successful completion of course requirements in the core requirements. Prerequisite: Successful completion of course requirements in the core requirements. Three to nine hours of credit may be earned. This course may be taken independent of course work as a culminating experience for three hours credit. Participation in on-the-job experiences will be provided in a wide range of hosting agencies, institutions, and clinics. Requirements for course completion will vary depending on the number of credit hours to be earned.

EXPW 4871 - Residency I

Fall only. Credit 5.

Prerequisite: Physical Education licensure major, acceptance into Upper Division Teacher Education and completion of EXPW 4711 and EXPW 4721 with a grade of B or higher. Corequisite: EXPW 4873. This course is a supervised authentic teaching experience. Candidates are assigned placement in a school where they spend 12 hours per week for the duration of the semester job shadowing, preparing and teaching. There are multiple evaluations by a university supervisor during this residency experience. Individual guidance and assistance are given to each candidate during Residency I in preparation for success in Residency II. A grade of B is required to meet degree requirements.

EXPW 4873 - Professional Seminar I

Fall Only. Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program; completion of EXPW 4711 and EXPW 4721 with a grade of B or better. Corequisite: EXPW 4871. This seminar is a problem-based learning experience that is directly linked to individual candidate's experiences in EXPW 4871 – Residency I and potential teaching situations. Special attention is given to Ready 2 Teach and EdTPA.

EXPW 4874 - Professional Seminar I

Lec. 2. Credit 2.

Prerequisite: Full admission to the teacher education program; completion of EXPW 4712, EXPW 4722, EXPW 4750 and EXPW 4751 with grade of "B" or better in each. Corequisite: EXPW 4871. This seminar is a problem-based learning experience that is directly linked to individual candidate's teaching and learning experiences in their Methods and Practicum courses. Candidates will use lesson plans and teaching videos to complete a 'moc' edTPA project, start to finish, that will be critiqued and scored in house, in preparation for the required assessment during Residency II.

EXPW 4881 - Residency II

Spring only. Credit 10.

Prerequisite: Physical education licensure major, acceptance into Upper Division Teacher Education and completion of EXPW 4871 and with EXPW 4873 with a grade of B or higher. Corequisite: EXPW 4882. This is the final semester of Residency which is a full-time, supervised teaching experience where the candidate teaches physical education at either the elementary, middle or high school level. The candidate must complete and submit the EdTPA assessment during this course, and score minimum or higher for program

completion, graduation and gaining a Tennessee teaching license. For cut scores and timelines see Office of Teacher Education.

EXPW 4882 - Professional Seminar II

Spring Only. Credit 2.

Corequisite: EXPW 4881. This course is a seminar on issues related to the interrelationships among school, culture and society; a historical, philosophical and sociological analysis.

EXPW 4900 - Research Methods in Exercise Science

Lec. 3. Credit 3.

Prerequisite: Senior Standing and completion of EXPW 4730. This undergraduate course provides a comprehensive introduction to research proposal writing, research methodologies, and foundational research theories and protocols. Students in this course learn about the cyclical nature of applied research and the process of research writing.

EXPW 4991 - Independent Study in Exercise Science

Credit 3.

Prerequisite: Consent of instructor. Special study of an approved topic within the Exercise Science field under the direct supervision of the Exercise Science faculty. Up to six hours may be taken for Upper Division credit to fulfill major or minor requirements.

EXPW 4992 - Independent Study in Exercise Science

Credit 3.

Prerequisite: Consent of instructor. Special study of an approved topic within the Exercise Science field under the direct supervision of the Exercise Science faculty. Up to six hours may be taken for Upper Division credit to fulfill major or minor requirements.

Finance

FIN 2000 - Personal Finance

Lec. 3. Credit 3.

Financial concepts and practices relevant to personal financial decision making. This course may be used as a business elective, but not as a Finance elective.

FIN 3210 - Principles of Managerial Finance

Lec. 3. Credit 3.

Prerequisite: ECON 2010, ECON 2020, and ACCT 2120 (or ACCT 3720 for non-business majors only). Financial theory and procedures required for the financial decision-making function of business

organizations. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 3220 - Intermediate Financial Management

Lec. 3. Credit 3.

Prerequisite: FIN 3210. Leasing, dividend policy, capital structure, long-term financing, convertibles, and warrants. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 3410 - Principles of Real Estate

Lec. 3. Credit 3.

Basic concepts, procedures, and analysis of real estate, property rights and liabilities, real estate instruments, estates, and liens. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 3420 - Commercial Banking I

Lec. 3. Credit 3.

Prerequisite: ECON 3320. Bank operations, including policy making and management of assets, liabilities and capital. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 3610 - Risk Management and Insurance

Lec. 3. Credit 3.

Fundamentals underlying the insurance method of handling risk, including the cost and functions of insurance contracts related to business and personal decision-making. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 3830 - Fundamentals of Investment

Lec. 3. Credit 3.

Prerequisite: ECON 3610, FIN 3210 or consent of instructor. Investment alternatives, markets and techniques of security valuation and analysis with emphasis on stock markets. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 4230 - Advanced Financial Decision Analysis

Lec. 3. Credit 3.

Prerequisite: FIN 3220, ECON 3610 and FIN 3830. Cash-flow analysis, budgeting, NPV, financial ratio analysis, financial planning, and use of microcomputers in finance. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 4420 - Commercial Banking II

Lec. 3. Credit 3.

Prerequisite: ECON 3320 and FIN 3420 or consent of instructor. This course serves as the capstone course in banking and provides students with an in-depth look at current challenges and opportunities faced by commercial bank managers. Contemporary regulatory issues, new products and delivery systems, and social concerns related to commercial banking are also examined. All business majors must have completed the Basic Business Program.

FIN 4430 - Real Estate Finance and Appraisal

Lec. 3. Credit 3.

Prerequisite: FIN 3210. Principles of financing real estate transactions, including valuation, sources of funds, cost of financing, and real estate appraisal. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 4460 - Investment Analysis and Portfolio Management

Lec. 3. Credit 3.

Prerequisite: FIN 3830. A study of the impact of economic factors and security markets upon security and portfolio values. Geared toward students wishing to pursue a career in financial markets. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 4470 - Investment Challenge I

Lec. 3. Credit 3.

Prerequisite: Permission of instructor. Advanced portfolio theory through actual management of a real investment portfolio. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 4480 - Investment Challenge II

Lec. 3. Credit 3.

Prerequisite: Permission of instructor. Advanced portfolio theory through actual management of a real investment portfolio. Enrollment in Junior- and Senior-level FIN

courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 4510 - International Trade and Finance

Cross-listing: ECON 4510 (5510)

Lec. 3. Credit 3.

Prerequisite: ECON 3320. International trade and monetary exchange, balance of payments and foreign investments. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 4910 - Multinational Financial Management

Lec. 3. Credit 3.

Prerequisite: FIN 3210. International markets and instruments, global financing strategies, global capital budgeting, global working capital management, and international tax planning. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 4930 - Integrative Case Studies in Finance

Lec. 3. Credit 3.

Prerequisite: FIN 3220. Case studies simulating the role of the modern financial manager in financial decision making. Enrollment in Junior- and Senior-level FIN courses requires Junior Standing. All business majors must have completed the Basic Business Program.

FIN 4990 - Special Topics

Credit 3-6.

Prerequisite: Consent of departmental chairperson. Directed study and research on a selected topic in finance. Course may be taken more than once as topics change.

FIN 5020 - Basic Finance

Lec. 3. Credit 3.

Prerequisite or corequisite: ACCT 5010. Introduction to the concepts and procedures needed for basic financial decision making in a corporate environment. Includes problem solving using spreadsheet templates.

Foreign Languages and Cultural Studies

FLCS 1010 - Foreign Languages and Cultural Studies I

Cross-listed with: FREN 1010 Elementary French I, GERM 1010 Elementary German I, SPAN 1010 Elementary Spanish I.

FLCS 1020 - Foreign Languages and Cultural Studies II

Cross-listed with: FREN 1020 Elementary French II, GERM 1020 Elementary German II, SPAN 1020 Elementary Spanish II.

FLCS 2010 - Foreign Languages and Cultural Studies III

Cross-listed with: FREN 2010 Transition to Intermediate French, GERM 2010 Transition to Intermediate German, SPAN 2010 Transition to Intermediate Spanish.

FLCS 2020 - Foreign Languages and Cultural Studies IV

Cross-listed with: FREN 2020 Intermediate French, GERM 2020 Intermediate German, SPAN 2020 Intermediate Spanish.

FLCS 3000 - Global Studies

Lec. 3. Credit 3.

Prerequisite: Junior Standing. Global topics will be examined from the perspective of current research in Germanic, Hispanic, and Francophone Studies, and from a variety of other disciplines, highlighting connections between the larger class topic, the international community, and the local community. Topics will change.

Foreign Language Studies

FLST 1011 - Elementary Foreign Language Study I

Credit 1-3.

Essentials of the language, developing listening and reading comprehension, oral and written communication, and cultural understanding. Language of study is not regularly offered on campus. This course will primarily be used for study abroad and for transfer credit. Course may be repeated if the language is different.

FLST 1013 - Elementary Foreign Language Study I

Credit 1-3.

Essentials of the language, developing listening and reading comprehension, oral and written communication, and cultural understanding. Language of study is not regularly offered on campus. This course will primarily be used for study abroad and for transfer credit. Course may be repeated if the language is different.

FLST 1021 - Elementary Foreign Language Study I

Credit 1-3.

Prerequisite: FLST 1013 or equivalent is prerequisite to 1021. Essentials of the language, developing listening and reading comprehension, oral and written communication, and cultural understanding. Course may be repeated if the language is different.

FLST 1023 - Elementary Foreign Language Study I

Credit 1-3.

Prerequisite: FLST 1013 or equivalent is prerequisite to FLST 1021. Essentials of the language, developing listening and reading comprehension, oral and written communication, and cultural understanding. Course may be repeated if the language is different.

FLST 2520 (3520) - The Cultures and Peoples of North Africa

Lec. 3. Credit 3.

This course is an introduction to the culture, politics, geography, diversity, arts, social structures, and history of selected nations of North Africa. Credit will not be given for both FLST 2520 and FLST 3520.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

Foreign Languages – French

FREN 1010 - Elementary French I

Lec. 3. Credit 3.

Essentials of French, developing listening and reading comprehension, oral and written communication, and cultural understanding.

FREN 1020 - Elementary French II

Lec. 3. Credit 3.

Prerequisite: FREN 1010. Essentials of French, developing listening and reading comprehension, oral and written communication, and cultural understanding. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

FREN 2010 - Intermediate French I

Lec. 3. Credit 3.

Prerequisite: FREN 1020. Continuation of the essentials of French, developing listening and reading comprehension, oral and written communication, and cultural understanding begun in 1010-1020. Review as necessary. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

FREN 2020 - Intermediate French 2

Lec. 3. Credit 3.

Prerequisite: FREN 2010. Expansion of French language study, building on the fundamentals of French acquired in 1010, 1020, and 2010. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

FREN 2510 - French Culture and Civilization

Lec. 3. Credit 3.

No background in French required. This course is taught in English. Introduction to French cultural and intellectual history, geography and diversity, arts and the political and social structures and characteristics of France today. Credit will not be given for both FREN 2510 and FREN 3510.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

FREN 3010 - Written Communication in French

Lec. 3. Credit 3.

Prerequisite: FREN 2020. Writing with additional practice in listening, speaking and reading, while exploring cultural topics. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

FREN 3020 - Oral Communication in French

Lec. 3. Credit 3.

Prerequisite: FREN 2020. Oral communication (speaking and listening) with additional practice in writing and reading while exploring cultural topics. Required for majors. Students with native-like fluency in French will substitute a different upper-level course for this one. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

FREN 3100 - French Phonetics

Lec. 3. Credit 3.

Prerequisite: FREN 3010. Detailed analysis of the significant features of the French sound system, intonation patterns, and graphic representations of phonemes. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

FREN 3110 - Survey of French Literature I

Lec. 3. Credit 3.

Prerequisite: FREN 3010. Literature of France from its earliest development to the present day. Required for

majors. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

FREN 3112 - Culture and Civilization of France

Lec. 3. Credit 3.

Prerequisite: FREN 3010. A study of important aspects of French civilization and culture from its beginning to present day. Required for French majors. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

FREN 3120 - Survey of French Literature II

Lec. 3. Credit 3.

Prerequisite: FREN 3010. Literature of France from the nineteenth century through present day. Required for majors. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

FREN 3200 - Business French

Lec. 3. Credit 3.

Prerequisite: FREN 3010. Business vocabulary, readings, and conversations in French on various business topics and on culture as it affects business interactions and practices in social and formal situations. Required for majors in International Business and Cultures who have a concentration in French. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

FREN 3510 - France: The Country & the People

Lec. 3. Credit 3.

No background in French required. Introduction in English to the history, arts, geography, and government of France and to the social characteristics of the French people.

FREN 4810 (5810) - Special Topics in French

Lec. 3. Credit 3.

Prerequisite: FREN 3010. This course may be repeated if the topic is different. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

FREN 4910 - Directed Studies in French

Read. 1-6. Credit 1-6 per semester. Maximum 16. Prerequisite: FREN 3010 or equivalent or consent of instructor. Concentrated readings in areas of special interest. Available to French majors on an individual basis, with consent of departmental chairperson.

FREN 4920 - Senior Capstone

Ind. 3. Credit 3.

Prerequisite: Consent of the Chair of the Foreign Language Department. Senior Standing required, normally taken during the last semester before graduation. Students will work individually, under the guidance of a faculty member, to create a portfolio and prepare a presentation to faculty and other students. In this course, students will enhance and demonstrate their cultural literacy, knowledge, and skills in the target language, integrating the three modes of communication: interpretive (listening and reading), presentational (speaking and writing), and interpersonal (listening, speaking, reading, and writing). This course is required for all foreign language majors, except for those students pursuing teaching licensure. They are required to take 4925: Teaching Licensure Senior Capstone.

FREN 4925 - Teaching Licensure Senior Capstone

Lec. 2. Credit 2.

Prerequisite: Senior Standing. Restricted to and required for all students pursuing a degree in Bachelor of Arts in French with SEED Licensure. This course is taken in the fall semester of the senior year. Exceptions must be approved by the Chair of the Department of Foreign Languages. In accordance with the School of Education, this course must be completed before entering teaching residency. Students will work individually, under the guidance of a faculty member, to create a portfolio and prepare a presentation to faculty and other students. In this course, students will integrate, enhance, and demonstrate the knowledge and skills learned during their undergraduate education in the areas of: speaking, listening comprehension, reading, writing and cultural literacy in the target language.

Foreign Languages – German

GERM 1010 - Elementary German I

Lec. 3. Credit 3.

Essentials of German, developing listening and reading comprehension, oral and written communication, and cultural understanding.

GERM 1020 - Elementary German II

Lec. 3. Credit 3.

Prerequisite: GERM 1010. Essentials of German, developing listening and reading comprehension, oral and written communication, and cultural understanding. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

GERM 2010 - Intermediate German I

Lec. 3. Credit 3.

Prerequisite: GERM 1020. Continuation of the essentials of German, developing listening and reading comprehension, oral and written communication, and cultural understanding begun in 1010-1020. Review as necessary. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

GERM 2020 - Intermediate German 2

Lec. 3. Credit 3.

Prerequisite: GERM 2010. Expansion of German language study, building on the fundamentals of German acquired in GERM 1010, GERM 1020, and GERM 2010. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

GERM 2520 - German Culture and Civilization

Lec. 3. Credit 3.

No background in German required. Introduction in English to German cultural history, geography and diversity, art, architecture, music and literature, and to the political and social structures and characteristics of Germany today in the context of the European Union. Credit will not be given for both GERM 2520 and GERM 3520.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

GERM 3010 - Written Communication in German

Lec. 3. Credit 3.

Prerequisite: GERM 2020. Advanced grammar and composition course. Further development of written command of language structures with additional practice in listening and speaking, while exploring cultural topics. Emphasis on writing proficiency. Required for majors. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

GERM 3020 - Oral Communication in German

Lec. 3. Credit 3.

Prerequisite: GERM 2020. Advanced conversation and grammar course. Further development of oral command of language structures with additional practice in writing and reading while exploring cultural topics. Emphasis on speaking proficiency. Required for majors. Students with native-like fluency in German will substitute a different upper-level course for this one. Qualified

students may be able to take this course without the prerequisite by contacting the instructor.

GERM 3112 - German Civilization and Culture

Lec. 3. Credit 3.

Prerequisite: GERM 2020. Introduction to Germany, its history and products of its culture, taught in German. Required for the German major. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

GERM 3150 - Introduction to German Literature

Lec. 3. Credit 3.

Prerequisite: GERM 3010. Literature of the German-speaking countries from its earliest development to the present day. Required for majors. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

GERM 3200 - Business German

Lec. 3. Credit 3.

Prerequisite: GERM 3010. Business vocabulary, readings and conversations in German on various business topics and on culture as it affects business interactions, and practices in social and formal situations. Required for majors in International Business and Cultures who have a concentration in German. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

GERM 3520 - Germany: The Country & the People

Lec. 3. Credit 3.

No background in German required. An expanded version of GERM 3510 with some additional topics. No credit will be given for both GERM 3510 and GERM 3520.

GERM 4510 - German Literature in English Translation

Lec. 3. Credit 3.

Selected topics in German literature, with lectures and readings in English. No foreign language training is required.

GERM 4810 (5810) - Special Topics in German

Lec. 3. Credit 3.

Prerequisite: GERM 3010. This course may be repeated if the topic is different. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

GERM 4910 - Directed Studies in German

Read. 1-6. Credit 1-6 per semester. Maximum 16. Prerequisite: GERM 3010 or equivalent or consent of instructor. Concentrated readings in areas of special interest. Available to German majors on an individual basis, with consent of departmental chairperson.

GERM 4920 - Senior Capstone

Ind. 3. Credit 3.

Prerequisite: Consent of the Chair of the Foreign Language Department. Senior Standing required, normally taken during the last semester before graduation. Students will work individually, under the guidance of a faculty member, to create a portfolio and prepare a presentation to faculty and other students. In this course, students will enhance and demonstrate their cultural literacy, knowledge, and skills in the target language, integrating the three modes of communication: interpretive (listening and reading), presentational (speaking and writing), and interpersonal (listening, speaking, reading, and writing). This course is required for all foreign language majors, except for those students pursuing teaching licensure. They are required to take 4925: Teaching Licensure Senior Capstone.

GERM 4925 - Teaching Licensure Senior Capstone

Lec. 2. Credit 2.

Prerequisite: Senior Standing. Restricted to and required for all students pursuing a degree in Bachelor of Arts in German with SEED Licensure. This course is taken in the fall semester of the senior year. Exceptions must be approved by the Chair of the Department of Foreign Languages. In accordance with the School of Education, this course must be completed before entering teaching residency. Students will work individually, under the guidance of a faculty member, to create a portfolio and prepare a presentation to faculty and other students. In this course, students will integrate, enhance, and demonstrate the knowledge and skills learned during their undergraduate education in the areas of: speaking, listening comprehension, reading, writing and cultural literacy in the target language.

Foreign Languages – Japanese

JAPN 3510 - Japan: The Country and the People

Lec. 3. Credit 3.

No background in Japanese required. Introduction in English to the history, arts, geography, and business structures of Japan, and to the customs of Japanese society.

Foreign Languages – Russian

RUSS 1010 - Elementary Russian I

Lec. 3. Credit 3.
Essentials of Russian, developing listening and reading comprehension, oral and written communication, and cultural understanding.

RUSS 1020 - Elementary Russian II

Lec. 3. Credit 3.
Prerequisite: RUSS 1010 or equivalent is prerequisite to 1020. Essentials of Russian, developing listening and reading comprehension, oral and written communication, and cultural understanding.

RUSS 2010 - Transition to Intermediate Russian

Lec. 3. Credit 3.
Prerequisite: RUSS 1020 or equivalent. Continuation of the essentials of Russian, developing listening and reading comprehension, oral and written communication, and cultural understanding begun in 1010-1020. Review as necessary.

RUSS 2020 - Intermediate Russian

Lec. 3. Credit 3.
Prerequisite: RUSS 2010 or equivalent. Expansion of Russian language study, building on the fundamentals of Russian acquired in 1010, 1020, and 2010.

RUSS 3510 - Russia: The Country and the People

Lec. 2. Credit 2.
No background in Russian required. Introduction in English to the arts, geography, economics, and government of Russia and to the social characteristics of the people.

Foreign Languages – Spanish

SPAN 1010 - Elementary Spanish I

Lec. 3. Credit 3.
Essentials of Spanish, developing listening and reading comprehension, oral and written communication, and cultural understanding. Students may enroll in SPAN 1010 or SPAN 1015, but not both. Native speakers of Spanish may not take this course.

SPAN 1015 - Spanish for Health Services

Lec. 3. Credit 3.
Course restricted to Nursing majors. (Special permission is needed from instructor for all other majors.) Spanish language instruction for students entering the medical fields. They will learn the Spanish language—

development of oral, reading, writing, and listening communication skills--and knowledge of Hispanic culture necessary to be able to communicate with their future Hispanic patients efficiently and effectively. Students may enroll in SPAN 1010 or SPAN 1015, but not both. Native speakers of Spanish may not take this course.

SPAN 1020 - Elementary Spanish II

Lec. 3. Credit 3.
Prerequisite: SPAN 1010 or SPAN 1015. Essentials of Spanish, developing listening and reading comprehension, oral and written communication, and cultural understanding. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

SPAN 2010 - Intermediate Spanish I

Lec. 3. Credit 3.
Prerequisite: SPAN 1020. Continuation of the essentials of Spanish, developing listening and reading comprehension, oral and written communication, and cultural understanding begun in 1010-1020. Review as necessary. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

SPAN 2020 - Intermediate Spanish 2

Lec. 3. Credit 3.
Prerequisite: SPAN 2010. Expansion of Spanish language study, building on the fundamentals of Spanish acquired in 1010, 1020, and 2010. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

SPAN 2510 - Spanish Culture and Civilization

Lec. 3. Credit 3.
No background in Spanish required. This course is taught in English. Introduction to Spanish cultural and intellectual history, geography and diversity, arts and the political and social structures, and characteristics of Spain today. Credit will not be given for both SPAN 2510 and SPAN 3510

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

SPAN 2550 - Latin American Culture and Civilization

Lec. 3. Credit 3.
No background in Spanish required. Introduction in English to Spanish Latin American cultural history, geography, cultural and ethnic diversity, art, music, literature and to the political and social structures that

have shaped modern Latin America. Credit will not be given for both SPAN 2550 and SPAN 3550.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

SPAN 3010 - Written Communication in Spanish

Lec. 3. Credit 3.

Prerequisite: SPAN 2020. Writing with additional practice in listening, speaking and reading, while exploring cultural topics. Required for the major. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

SPAN 3020 - Oral Communication in Spanish

Lec. 3. Credit 3.

Prerequisite: SPAN 3010. Oral communication (speaking and listening) with additional practice in writing and reading while exploring cultural topics. Required for majors. Students with native-like fluency in Spanish will substitute a different upper-level course for this one. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

SPAN 3200 - Spanish for Business I

Lec. 3. Credit 3.

Prerequisite: SPAN 3010. Business vocabulary and readings in Spanish on various business topics and on culture as it affects business interactions and practices. Required for International Business and Cultures majors with language concentration in Spanish. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

SPAN 3510 - Spain: The Country and the People

Lec. 3. Credit 3.

No background in Spanish required. Introduction in English to the history, arts, geography, and government of Spain and to the civilization and social characteristics of the Spanish people.

SPAN 3550 - Latin America: The Countries and the Peoples

Lec. 3. Credit 3.

No background in Spanish required. Introduction in English to the history, arts, geography, and governments of the Spanish-speaking countries of Latin America and to the civilization and social characteristics of the people.

SPAN 4010 (5010) - Introduction to the Literature of Spain

Lec. 3. Credit 3.

Prerequisite: SPAN 3010. Selections from the literature of Spain. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

SPAN 4020 (5020) - Introduction to the Literature of Spanish America

Lec. 3. Credit 3.

Prerequisite: SPAN 3010. Selections from the literature of Spanish America. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

SPAN 4030 (5030) - Advanced Spanish Conversation

Lec. 3. Credit 3.

Prerequisite: SPAN 3020. Discussion in Spanish on political, medical, legal and business topics. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

SPAN 4110 (5110) - Culture and Civilization of Spain

Lec. 3. Credit 3.

Prerequisite: SPAN 3010. Lectures, readings and discussion in Spanish on the culture and civilization of Spain. Qualified students may be able to take this course without the prerequisite by contacting the instructor.

SPAN 4120 (5120) - Culture and Civilization of Spanish America

Lec. 3. Credit 3.

Prerequisite: SPAN 3010. Lectures, readings, and discussion in Spanish on the culture and civilization of Spanish America. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

SPAN 4810 - Special Topics in Spanish

Lec. 3. Credit 3.

Prerequisite: SPAN 3010. This course may be repeated if the topic is different. Qualified students may be able to take this course without the prerequisite by contacting the Department of Foreign Languages.

SPAN 4910 - Directed Studies

Read. 1-6. Credit 1-6 per semester. Maximum 16.

Prerequisite: SPAN 3010 or equivalent or consent of instructor. Concentrated studies in areas of special

interest. Available on an individual basis, with consent of departmental chairperson.

SPAN 4920 - Senior Capstone

Ind. 3. Credit 3.

Prerequisite: Consent of the Chair of the Foreign Language Department. Senior Standing required, normally taken during the last semester before graduation. Students will work individually, under the guidance of a faculty member, to create a portfolio and prepare a presentation to faculty and other students. In this course, students will enhance and demonstrate their cultural literacy, knowledge, and skills in the target language, integrating the three modes of communication: interpretive (listening and reading), presentational (speaking and writing), and interpersonal (listening, speaking, reading, and writing). This course is required for all foreign language majors, except for those students pursuing teaching licensure. They are required to take 4925: Teaching Licensure Senior Capstone.

SPAN 4925 - Teaching Licensure Senior Capstone

Lec. 2. Credit 2.

Prerequisite: Senior Standing. Restricted to and required for all students pursuing a degree in Bachelor of Arts in Spanish with SEED Licensure. This course is taken in the fall semester of the senior year. Exceptions must be approved by the Chair of the Department of Foreign Languages. In accordance with the School of Education, this course must be completed before entering teaching residency. Students will work individually, under the guidance of a faculty member, to create a portfolio and prepare a presentation to faculty and other students. In this course, students will integrate, enhance, and demonstrate the knowledge and skills learned during their undergraduate education in the areas of: speaking, listening comprehension, reading, writing and cultural literacy in the target language.

Foundations of Education

FOED 1820 - Introductory Field Experience

Lec. 1. Credit 1.

Corequisite: FOED 2011. Observation and discussion of authentic educational settings appropriate for licensure area(s). For all licensure majors, not available for freshmen. A minimum grade of B is required to meet degree requirements.

FOED 1821 - Introductory Field Experience in Speech and Theatre Education

Lab. 3. Credit 1.

Application of FOED 1010 content in lab and field

experiences including supervised observation in educational settings. For SEST licensure students.

FOED 1822 - Introductory Field Experience and Orientation

Lec. 1. Credit 1.

Corequisite: FOED 2011. Observation and discussion in authentic educational settings appropriate for licensure area(s). For freshmen only. A minimum grade of B is required to meet degree requirements.

FOED 2011 - Introduction to Teaching and Technology

Lec. 2. Credit 2.

Corequisite: FOED 1820, all licensure majors. FOED 1822, for freshmen only. An overview of school in America, the role and responsibility of the teacher, and an introduction to instructional technology principles and practices. A minimum grade of B is required to meet degree requirements.

FOED 3010 - Integrating Instructional Technology into the Classroom

Lec. 3. Credit 3.

Prerequisite: FOED 2011 or the equivalent. Using, integrating and evaluating instructional technology in today's classroom. Requirement: A minimum of grade of B to demonstrate a candidate's competency in technology integration prior to Residency I.

FOED 3240 - Instructional Technology I

Lec. 2. Credit 2.

Development of an application of basic audio-visual and computer skills to facilitate quality instruction in the classroom. Credit cannot be obtained for CSC 1100 in addition to credit for either DS 2810 or FOED 3240.

FOED 3310 - Microcomputers in Employment/Education

Credit 2.

Windows-based microcomputers in employment and education. Focusing on work processing, spreadsheet, database, graphics, internet applications, and other computer tools.

FOED 3340 - Instructional Technology II

Lec. 1. Lab. 4. Credit 3.

Prerequisite: FOED 3240. Selection, operation, use, and integration of instructional technology in today's classroom.

FOED 3800 - Field Experiences in Education

Lab. 4-12. Credit 1-3.

Prerequisite: Full admission to the Teacher Education Program. Supervised work experiences in public schools stressing the translation of theory into practice. A minimum grade of B is required to meet degree requirements.

FOED 3810 - Field Experiences in Education

Lab. 4-12. Credit 1-2.

Prerequisite: Full admission to the Teacher Education Program. Supervised work experiences in public schools stressing the translation of theory into practice. A minimum grade of B is required to meet degree requirements.

FOED 3820 - Field Experiences in Education

Lab. 4-12. Credit 1-2.

Prerequisite: Full admission to the Teacher Education Program. Supervised work experiences in public schools stressing the translation of theory into practice. A minimum grade of B is required to meet degree requirements.

FOED 3830 - Field Experiences in Education

Lab. 4-12. Credit 1.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: CUED 4150. Supervised work experiences in public schools stressing the translation of theory into practice. A minimum grade of B is required to meet degree requirements.

FOED 3840 - Field Experiences in ESL

Lab. 4-12. Credit 1-3.

Prerequisite: Full admission to the Teacher Education Program. Supervised work experiences in public schools stressing the translation of theory into practice. A minimum grade of B is required to meet degree requirements for licensure candidates.

FOED 4340 - Technology for Presentations

Credit 3.

Prerequisite: FOED 3310. Development of knowledge and skills necessary for communications and presentations using various instructional technologies and Windows computer software.

Geography

GEOG 1010 - Weather and Climate

Lec. 3. Credit 3.

Introduction to weather and climate, landforms, soils, vegetation, and water.

GEOG 1012 - Cultural Geography

Lec. 3. Credit 3.

Distribution of people and their activities as they are related to the earth.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences). (GEOG 1030, TTP Course)

GEOG 1035 - World Regional Geography I

Lec. 3. Credit 3.

This course examines the political, economic, demographic and environmental shifts happening in the world today. Throughout this course, students will be exposed to the following concepts: globalization, development of world regions, issues of people and land, diversity of cultures and regions, global changes and local responses, cultural and political landscapes, global economics, and environmental issues.

(GEOG 2010, TTP Course)

GEOG 1100 - Global Climate Change

Lec. 3. Credit 3.

This is an introduction to the Earth's global climate from an Earth-systems perspective. We will investigate prehistoric and historic fluctuations in Earth's climate, the current climate system, and projections for future climate and climate impacts.

GEOG 1130 - Geography of Natural Hazards

Lec. 3. Credit 3.

The societal and economic impact of natural hazards including flooding, hurricanes, tornadoes, volcanoes, earthquakes, landslides, disease, wildfire, drought, famine, and climate change. The response of governments, cultures, and individuals to natural hazards.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences).

GEOG 2100 - Introduction to Meteorology

Lec. 3. Lab. 2. Credit 4.

An introduction to atmospheric science and elements controlling daily weather. Global and local scale atmospheric processes, atmospheric hazards, weather

monitoring and technology, forecasting, global climates, and climate change.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

GEOG 3010 - Geography of the United States

Lec. 3. Credit 3.

Prerequisite: GEOG 1010. The United States and its physical environment, resources and cultural development.

GEOG 3200 - Water Resources

Cross-listing: GEOL 3200

Lec. 3. Credit 3.

This course deals with water as a resource basic for life on Earth. Topics to be covered include: dams and reservoirs, irrigation, inter-basin transfers, river channel modification, flood control, water quality, and water law.

GEOG 3330 - Meteorology

Lec. 3. Lab. 2. Credit 4.

Earth's atmosphere and the mechanics and causes of day to day weather changes.

GEOG 4150 (5150) - Geomorphology

Cross-listing: GEOL 4150 (5150)

Lec. 2. Lab. 4. Credit 4.

Prerequisite: GEOL 2500. Analysis of landforms and processes that shape them.

GEOG 4210 (5210) - Cartography

Lec. 2. Lab. 2. Credit 3.

Principles and practices of map construction and interpretation.

GEOG 4410 (5410) - Remote Sensing

Cross-listing: GEOL 4410 (5410)

Lec. 2. Lab. 2. Credit 3.

Prerequisite: GEOL 2500. Principles and applications of remote sensing. Provides a survey of the concepts and techniques of remote sensing and image analysis for natural resources, geomorphology, and Earth surface processes.

GEOG 4510 (5510) - Theory of GIS I

Lec. 3. Credit 3.

Prerequisite: Consent of instructor. Introduction to 1) the PC ARC/INFO GIS package, 2) ArcView GIS package, and 3) the integration of Global Positioning Systems (GPS) with GIS.

GEOG 4511 (5511) - Theory of GIS II

Lec. 3. Credit 3.

Prerequisite: Consent of instructor and GEOG 4510 (5510). Intermediate principles of GIS using ArcGIS and ArcView packages. Advanced integration of GPS and GIS. Spatial analysis and modeling capabilities of GIS emphasized.

GEOG 4620 (5620) - Principles of GIS

Lec. 3. Credit 3.

Introduction to the fundamentals of GIS. Theoretical and technical principles of managing and processing geographic data, nature of geographic data, spatial data models of map projection systems, kriging, structures, and spatial analytical and modeling techniques.

GEOG 4650 (5650) - Environmental Applications of GIS

Lec. 3. Credit 3.

Prerequisite: GEOG 4510 (5510). Applications of GIS in environmental sciences and engineering. Main emphasis is on approaches, scripting, and modeling exercises. Covers the scope of ecosystems, forestry, drainage basins, pollution modeling, and spatial analysis of contaminants in various environments using GIS as the main tool of analysis. Completion of a real-world GIS project is required.

GEOG 4711 (5711) - Hydrogeology

Cross-listing: GEOL 4711 (5711)

Lec. 3. Lab. 2. Credit 4.

Prerequisite: GEOL 1040 and GEOL 1045. Occurrence and movement of ground water, well hydraulics, water quality, and pollution.

GEOG 4810 - Special Problems

Credit 1-4.

Prerequisite: Consent of instructor. Research course on topics of significance in the field of geography. A paper reporting the results of this research is required. Course may be taken for credit more than once.

GEOG 4820 - Special Problems

Credit 1-4.

Prerequisite: Consent of instructor. Research course on topics of significance in the field of geography. A paper reporting the results of this research is required. Course may be taken for credit more than once.

GEOG 4850 (5850) - Advanced GIS

Lec. 3. Credit 3.

Prerequisite: GEOG 4510 (5510). Advanced topics in

GIS, including writing of avenue scripts, writing and importing Visual Basic scripts, customization of the interface; customization of spatial, network, and 3D extensions of ArcView and AML.

GEOG 4930 - Senior Thesis

Cross-listing: GEOL 4930

Credit 3.

Prerequisite: Consent of instructor. Supervised independent study of an original research problem. Student is required to make a research proposal, collect data, review appropriate literature, write a paper, and present orally the results of the research problem. (Available only to Geology majors.)

GEOG 4931 - Senior Thesis

Cross-listing: GEOL 4931

Credit 3.

Prerequisite: GEOL 4930 and consent of instructor. Supervised independent study of an original research problem. Student is required to make a research proposal, collect data, review appropriate literature, write a paper and present orally the results of the research problem. (Available only to geology majors.)

Geology

GEOL 1020 - Field Experiences in the Geosciences

Lec. 2. Credit 1.

This course will introduce students interested in science to the practice of scientific research in the field and the laboratory, with emphasis on the geosciences. Field trips and in-class activities will stimulate critical thinking and real-world problem-solving skills unique to the sciences. Current geosciences-related issues will be discussed in class (e.g. Sumatra tsunami, Himalayan earthquakes).

GEOL 1040 - Physical Geology

Lec. 3. Lab. 2. Credit 4.

Origin and classification of minerals and rocks; geologic processes and landform development. Credit will not be given for both: 1)GEOL 1040 and GEOL 1070, 2)GEOL 1040 and GEOL 3210, and 3)GEOL 1070 and GEOL 3210.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

GEOL 1045 - Earth Environment, Resources and Society

Lec. 3. Lab. 2. Credit 4.

Application of physical geology principles to geologic hazards, environmental pollution, and land/resource use.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

GEOL 1046 - Earth Environment, Resources and Society

Lec. 3. Credit 3.

Application of physical geology principles to geologic hazards, environmental pollution, and land/resource use. This course cannot be taken as part of the university natural sciences requirement and credit will not be given for both GEOL 1046 and GEOL 1045.

GEOL 1070 - Concepts of Geology

Lec. 2. Lab. 2. Credit 3.

Introduction to the earth sciences: minerals and rocks, resources, geologic processes, water, earthquakes, maps, folds and faults, geologic time, continental drift, weather, and climate. This course will not count as part of a geology sequence. Credit will not be given for both: 1)GEOL 1040 and GEOL 1070, 2)GEOL 1040 and GEOL 3210, and 3)GEOL 1070 and GEOL 3210.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

GEOL 2000 - Earth Evolution and Life History

Lec. 3. Credit 3.

Prerequisite: GEOL 1040. Illustrate how biological and geological interactions have influenced life patterns and Earth history and how these processes continue to shape human history today. Also, the impact of human population upon these Earth systems.

GEOL 2010 - Topical Minicourse in Geology

Credit 1.

Independent study including library and outdoor projects. No formal classwork is required. Not intended for Geosciences majors.

GEOL 2500 - Geological Fundamentals

Lec. 2. Lab. 2. Credit 3.

Prerequisite or corequisite: GEOL 1040. Basic geologic field techniques and map reading. Detailed study of rocks and minerals.

GEOL 2510 - Oceanography 1. Physical, Chemical and Geological

Summer. Credit 5.

Prerequisite: College Algebra, eight semester hours of Chemistry. Fundamentals of Oceanography integrating chemical, geological, and physical Oceanography. The

course is offered at the Gulf Coast Research Laboratories.

GEOL 3010 - Dinosaurs

Lec. 3. Credit 3.

Recent concepts in the study of dinosaurs, including their paleobiology, relationships to other organisms, extinction, and distribution in space and time.

GEOL 3110 - Principles of Mineralogy and Petrology

Lec. 2. Lab. 4. Credit 4.

Prerequisite: GEOL 1040 and CHEM 1110. Physical properties of minerals; identification of basic rock-forming minerals, elements of rock classification, and megascopic properties of common rocks.

GEOL 3120 - Mineralogy

Lec. 2. Lab. 4. Credit 4.

Prerequisite: CHEM 1120, GEOL 3110 and MATH 1720. Geometrical crystallography; determination of silicate and nonsilicate minerals by physical properties, chemical tests, and X-ray diffraction.

GEOL 3200 - Water Resources

Cross-listing: GEOG 3200

Lec. 3. Credit 3.

This course deals with water as a resource basic for life on Earth. Topics to be covered include: dams and reservoirs, irrigation, inter-basin transfers, river channel modification, flood control, water quality, and water law.

GEOL 3210 - Geology for Engineers

Lec. 2. Lab. 2. Credit 3.

Introduction to principles of Geology and practical application of Geology to Engineering problems. Credit will not be given for both: 1)GEOL 1040 and GEOL 1070, 2)GEOL 1040 and GEOL 3210, and 3)GEOL 1070 and GEOL 3210.

GEOL 3230 - Structural Geology and Tectonics

Lec. 3. Lab. 2. Credit 4.

Prerequisite: GEOL 1040 or GEOL 3210. The mechanisms of plate tectonics and the geologic structures that result from rock deformation; application of methods for structural analysis in the field and the lab.

GEOL 3310 - Planetary Geoscience

Lec. 3. Credit 3.

Geology of rocky bodies in the solar system and exoplanets. Integrates data from exploration missions to compare Earth processes to other celestial objects

GEOL 3350 - Paleobiology

Lec. 3. Credit 3.

Prerequisite: Junior Standing and one of the following courses: GEOL 1040, GEOL 2000, BIOL 1010, BIOL 1020, BIOL 1113 or BIOL 1123. Survey of biologic and geologic principles related to preservation, variation, classification, speciation, evolution, paleoecology, and biogeography or fossil invertebrates.

GEOL 3410 - Paleontology

Lec. 2. Lab. 4. Credit 4.

Prerequisite: GEOL 1040, GEOL 1045 or BIOL 1113. Systematics, morphology, stratigraphic distribution, and evolutionary significance of all major taxa of invertebrate macrofossils and selected microfossils.

GEOL 3550 - Paleoclimates

Lec. 3. Lab. 2. Credit 4.

Prerequisite: GEOL 1040, GEOL 1045, or GEOL 3210. Principles of the Earth's climate system, including proxies used for paleoclimate studies and the history of climate change throughout geological time.

GEOL 3750 - Stable Isotope Geochemistry

Lec. 3. Lab.2. Credit 4.

Prerequisite: GEOL 2500 and CHEM 1110. This course will emphasize the geochemical elements of the Earth system. We will look at the nomenclature of stable isotope systems and look at the application to earth and environmental systems.

GEOL 3830 - Field Geology

Credit 4.

Prerequisite: GEOL 1040 and GEOL 2500. Introduction to field methods involving the identification and tracing of geologic formations, aerial mapping and structure contouring. Eight hours field work per week.

GEOL 4040 - Summer Field Geology

Credit 4-9.

Field course in geological mapping.

GEOL 4100 - Environmental Sedimentology

Lec. 2. Lab. 4. Credit 4.

Prerequisite: GEOL 1040. Basic sampling and analytic techniques to determine compositions and textures of non-lithified sediments and the use of grain-sized distributions to interpret depositional process. Field trips will be taken to examine modern river and coastal deposits.

GEOL 4110 - Sedimentation and Stratigraphy

Lec. 3. Lab. 2. Credit 4.

Prerequisite: GEOL 1040 and GEOL 2500. Fundamental depositional processes, sedimentary structures, and facies models of siliciclastic and carbonate sedimentary rocks. Basic stratigraphy concepts, methods of correlation, and introduction to sequence stratigraphy.

GEOL 4150 (5150) - Geomorphology

Cross-listing: GEOG 4150 (5150)

Lec. 2. Lab. 4. Credit 4.

Prerequisite: GEOL 1040 and GEOL 2500 or consent of instructor. Analysis of landforms and processes that shape them.

GEOL 4200 - Geological Exploration Techniques

Lec. 3. Lab. 2. Credit 4.

Prerequisite: GEOL 1040, GEOL 1045 and GEOL 2500. Practical techniques for geological exploration, with emphasis on environmental, mining, and petroleum industry applications. Surface and subsurface methods include geological mapping, drilling, core extraction, wireline logging and 2D/3D seismic.

GEOL 4210 - Advanced Historical Geology

Lec. 3. Credit 3.

Prerequisite: Completion of core curriculum in Geology and GEOL 3410. Advanced treatment of the Earth's history concentrating on plate tectonics, evolution of the biosphere and chemical changes from the Archaean to the Holocene.

GEOL 4300 (5300) - Environmental Aqueous Geochemistry

Lec. 3. Credit 3.

Prerequisite: GEOL 1040, CHEM 1010 or CHEM 1110, or consent of instructor. Principles of water quality, chemical thermodynamics and equilibrium; chemical reactions; modeling of aquatic systems and a survey of practical applications of equilibrium aqueous geochemistry.

GEOL 4410 (5410) - Remote Sensing

Cross-listing: GEOG 4410 (5410)

Lec. 2. Lab. 2. Credit 3.

Prerequisite: GEOL 2500 and GEOL 3230 or consent of instructor. Principles and applications of remote sensing. Provides a survey of the concepts and techniques of remote sensing and image analysis for natural resources, geomorphology, and Earth surface processes.

GEOL 4610 - Optical Mineralogy and Petrography

Lec. 2. Lab. 4. Credit 4.

Prerequisite: GEOL 3120. Theory and use of the petrographic microscope in mineral optics, and study of rocks in thin sections using the petrographic microscope.

GEOL 4650 (5650) - Applied Geochemistry

Lec. 3. Credit 3.

Prerequisite: GEOL 1040 and CHEM 1110. Application of geochemistry to mineral exploration, environmental pollution, public health, and geologic hazards. Three field trips required.

GEOL 4711 (5711) - Hydrogeology

Cross-listing: GEOG 4711 (5711)

Lec. 3. Lab. 2. Credit 4.

Prerequisite: GEOL 1040 and GEOL 1045; CHEM 1120; MATH 1830 or MATH 1730 (MATH 1910 is recommended); or consent of instructor. Occurrence and movement of ground water, well hydraulics, water quality, and pollution.

GEOL 4810 (5810) - Special Problems

Credit 1-4.

Prerequisite: Major and consent of instructor. Advanced students may do independent investigations in some approved field. Course may be taken for credit more than once.

GEOL 4820 (5820) - Special Problems

Credit 1-4.

Prerequisite: Major and consent of instructor. Advanced students may do independent investigations in some approved field. Course may be taken for credit more than once.

GEOL 4930 - Senior Thesis

Cross-listing: GEOG 4930

Credit 3.

Prerequisite: Consent of instructor. Supervised independent study of an original research problem. Student is required to make a research proposal, collect data, review appropriate literature, write a paper, and present orally the results of the research problem. (Available only to Geology majors.)

GEOL 4931 - Senior Thesis

Cross-listing: GEOG 4931

Credit 3.

Prerequisite: GEOL 4930 and consent of instructor. Supervised independent study of an original research problem. Student is required to make a research proposal, collect data, review appropriate literature, write

a paper and present orally the results of the research problem. (Available only to geology majors.)

History

HIST 1066 - First Year Connections

Lec. 1. Credit 1.

This course is designed to provide the students an enlarged perspective with which to succeed as History majors at Tennessee Technological.

HIST 1310 - Science and World Cultures

Lec. 3. Credit 3.

Historical development of science in select world cultures, from the ancient world into the 20th century.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

HIST 2000 - Introduction to United States History

Lec. 3. Credit 3.

An exploration of the chronology and major themes in U.S. History with special attention to geography and terminology, for students who have not completed one year of U.S. History in high school (including international students).

HIST 2010 - Early United States History

Lec. 3. Credit 3.

Colonial heritage; Independence; Nationalism and Expansion; Rise of Democracy, Reform, and Sectionalism; and Civil War and Reconstruction.

◆ Meets Tennessee Technological University general education requirement (History).

HIST 2020 - Modern United States History

Lec. 3. Credit 3.

Industrialism and Urbanism; World Power; Reform; World War I and aftermath; New Deal; World War II; Prosperity; and the Cold War.

◆ Meets Tennessee Technological University general education requirement (History).

HIST 2030 - History of Tennessee

Lec. 3. Credit 3.

Survey of Tennessee history from the earliest settlement to the present.

HIST 2210 - Early Western Civilization

Lec. 3. Credit 3.

Classical Greece and Rome; transformation of the West during Middle Ages; Renaissance; Reformation; rise of national states; and expansion overseas.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

HIST 2220 - Modern Western Civilization

Lec. 3. Credit 3.

Enlightenment; French Revolution; Industrialism, Liberalism, Nationalism, and Imperialism; World Wars; and Europe in mid-20th Century.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

HIST 2310 - Early World History

Lec. 3. Credit 3.

Development of the human community from pre-history to the year 1500.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

HIST 2320 - Modern World History

Lec. 3. Credit 3.

World History since 1500, including the development of modern science, the rise of the nation-state, European hegemony, colonialism, and anti-colonialism.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

HIST 3100 - Tennessee Topics

Lec. 3. Credit 3.

Prerequisite: Select two: HIST 2010, HIST 2020 or HIST 2030. Political, military, social, and cultural topics in Tennessee history.

HIST 3360 - American Military History

Lec. 3. Credit 3.

U.S. military affairs, emphasizing war, role of officer corps, and relation of military to managerial, technological, and social change.

HIST 3410 - Introduction to Historical Methods

Lec. 3. Credit 3.

Prerequisite: Permission required. An introduction to

historical writing, research, criticism, methodology, and related technical skills.

HIST 3550 - Ancient Greece and Rome

Lec. 3. Credit 3.
Rise of ancient Greek culture and its transformation in the Hellenistic and Roman periods to the death of Justinian (565 A.D.).

HIST 3710 - Survey of Spanish History

Lec. 3. Credit 3.
The political, economic, and cultural development of Spain from the earliest time to the present.

HIST 3900 - Environmental History

Lec. 3. Credit 3.
The history of human impact on the North American environment and the resulting effects on society.

HIST 4010 (5010) - Colonial and Revolutionary Periods

Lec. 3. Credit 3.
Early American Society; Revolutionary conflict; and the Confederation and Constitution.

HIST 4020 (5020) - The Young Republic, 1789-1849

Lec. 3. Credit 3.
Political, military, social and cultural history of the U.S., from the era of Washington through the "Age of Jackson" to the Mexican War.

HIST 4030 (5030) - Civil War and Reconstruction, 1849-1877

Lec. 3. Credit 3.
Sectionalism and the coming war; war-time developments; and plans of reconstruction and their impact.

HIST 4040 (5040) - Rise of Modern America, 1877-1912

Lec. 3. Credit 3.
Industrialism, urbanism, populism, reform, and their impact.

HIST 4050 (5050) - The Transformation of Modern America, 1912-1945

Lec. 3. Credit 3.
Wilsonian reform, World War I, New Era, New Deal, World War II, with emphasis on changes in politics, the economy, and society.

HIST 4060 (5060) - Postwar America, 1945-Present

Lec. 3. Credit 3.
Cold War diplomacy and society, troubled Sixties, post-Watergate politics, and contemporary cultural, economic, and social changes.

HIST 4090 - 20th Century U.S. Popular Culture

Lec. 3. Credit 3.
An examination of various themes and genres in 20th Century U.S. Popular Culture in the context of contemporary events.

HIST 4091-4099 - Studies in Popular Culture

Lec. 3. Credit 3.
Considers issues relating to the history of popular culture.

HIST 4200 (5200) - The Old South

Lec. 3. Credit 3.
This course will focus upon the economic, cultural, educational, racial, and political developments in Southern society from its colonial beginnings to the Civil War and Reconstruction.

HIST 4210 (5210) - The South

Lec. 3. Credit 3.
Southern life to the present, emphasizing economic, cultural, educational, racial, and political problems.

HIST 4230-4239 (5230) - Topics in U.S. Economic History

Lec. 3. Credit 3.
Selected topics in U.S. economic history.

HIST 4250 (5250) - American Westward Movement

Lec. 3. Credit 3.
The frontier experience in American history, with emphasis on the trans-Mississippi West.

HIST 4290 (5290) - Science and Technology in America

Lec. 3. Credit 3.
Origins and development of science and technology in the U.S. from the colonial period to the present.

HIST 4310 (5310) - U.S. Diplomacy

Lec. 3. Credit 3.
The background, origins, and developments of 20th century American foreign relations.

HIST 4330-4339 (5330) - Religious Studies

Lec. 3. Credit 3.
Selected topics in religious history.

HIST 4350-4359 (5350) - Gender Studies

Lec. 3. Credit 3.
Selected topics in gender history.

HIST 4360-4369 (5360) - U.S. Social History

Lec. 3. Credit 3.
Selected topics in U.S. Social History, ranging from the Colonial period to the present.

HIST 4370 (5370) - Women in American History

Lec. 3. Credit 3.
Public and private experiences of women in the United States from the colonial period to the present.

HIST 4390-4399 (5390) - Topics in African American Studies

Lec. 3. Credit 3.
Selected topics in African American history.

HIST 4400-4409 (5400) - Film Studies

Lec. 2. Lab. 2. Credit 3.
Selected topics in the history of films.

HIST 4420 - Public History

Lec. 3. Credit 3.
Prerequisite: HIST 3410. Introduce history majors to possible careers in the field and give students practical, hands-on experience in the field of Public History.

HIST 4440-4449 (5440) - Native American Studies

Lec. 3. Credit 3.
Prerequisite: Consent of the instructor. Selected topics in Native American history, ranging from the earliest times to the present.

HIST 4470-4479 (5470) - Sports Studies

Lec. 3. Credit 3.
Selected topics in the history of sports.

HIST 4520 (5520) - Medieval Europe

Lec. 3. Credit 3.
Evolution of Medieval culture from the fall of the Roman Empire to the 13th century and its dissolution during the late medieval period.

HIST 4530 (5530) - Renaissance and Reformation

Lec. 3. Credit 3.
Europe during age of New Learning; Renaissance and Mannerist art; 16th century Reformation; and Wars of Religion.

HIST 4540 (5540) - Absolutism and Enlightenment

Lec. 3. Credit 3.
Europe during 17th and 18th centuries; rise of centralized states; dynastic wars and rise of modern science; and Enlightenment thought.

HIST 4550 (5550) - French Revolution and Napoleon

Lec. 3. Credit 3.
Europe from 1789 to 1815, centering on events in France and political, diplomatic, and military history of the period.

HIST 4560 (5560) - 19th Century Europe

Lec. 3. Credit 3.
European politics, diplomacy, society, war, and institutions from 1815 through World War I.

HIST 4570 (5570) - World War II and the Cold War

Lec. 3. Credit 3.
Problems of European powers during inter-war years; background, causes, and results of World War II and Cold War.

HIST 4620 (5620) - Russia

Lec. 3. Credit 3.
Political, cultural, social, and military history from the Kievan period to the present.

HIST 4630 - History of France

Lec. 3. Credit 3.
Considers the historical development of France.

HIST 4640 - History of Modern Germany

Lec. 3. Credit 3.
History of Modern Germany with an emphasis on the nineteenth and twentieth centuries.

HIST 4650 (5650) - England to 1688

Lec. 3. Credit 3.
Roman, Anglo-Saxon, and Medieval England; Tudor and Stuart Dynasties.

HIST 4660 (5660) - Modern England

Lec. 3. Credit 3.
England since the Glorious Revolution, with special emphasis on the 19th and 20th centuries.

HIST 4665 - World War I

Lec. 3. Credit 3.
Considers World War I and its consequences within the political, social, and cultural contexts of European development since 1871.

HIST 4680 (5680) - The Holocaust

Lec. 3. Credit 3.
Considers topics relating to the history of the Holocaust.

HIST 4690 (5690) - British Empire and Commonwealth

Lec. 3. Credit 3.
Origin, development, and decline of the British Empire.

HIST 4710 - History of Africa

Lec. 3. Credit 3.
History of Africa with emphasis on the nineteenth and twentieth centuries.

HIST 4730 (5730) - The Modern Middle East

Lec. 3. Credit 3.
Consideration of the traditional cultural background of the region but with emphasis on the rapid changes experienced during the 20th century.

HIST 4740 (5740) - History of Japan

Lec. 3. Credit 3.
Early Japanese history followed by a comprehensive investigation of the 20th century experience.

HIST 4750 (5750) - History of China

Lec. 3. Credit 3.
Early Chinese history followed by an emphasis on the 20th century revolutionary experience.

HIST 4760 (5760) - Vietnam: Its Wars and Their Aftermath

Lec. 3. Credit 3.
Overview of Vietnam, the French experience, and the U.S. war and its impact on America, followed by developments since 1975.

HIST 4790-4799 (5790) - Latin American Studies

Lec. 3. Credit 3.
Selected topics in Latin American history.

HIST 4810 (5810) - Scientific Controversies

Lec. 3. Credit 3.
Historical analysis of selected controversies in science and their impact within and outside the scientific community.

HIST 4880 (5880) - History of Medicine

Lec. 3. Credit 3.
Considers the history of medicine and the medical field.

HIST 4880-4889 - Studies in Legal History

Lec. 3. Credit 3.
Considers issues relating to legal history.

HIST 4890 (5890) - History of Nursing and Healthcare

Lec. 3. Credit 3.
Considers issues relating to the history of nursing and healthcare.

HIST 4900-4909 - Topics

Lec. 3. Credit 3.
A formal course in any area where there is no other course offering.

HIST 4910-4919 - Directed Studies

Credit 1, 2, 3.
Prerequisite: Consent of instructor. Supervised research and reading in any area where there is no appropriate course offering.

HIST 4940 - History Internship I

Credit 3.
Prerequisite: Twelve hours of History courses. Students develop specific skills in the research and/or the interpretation of history by working with archives, museums, historic sites, attorneys, and other relevant professionals.

HIST 4941 - History Internship II

Credit 3.
Prerequisite: HIST 4940. Students develop specific skills in the research and/or the interpretation of history by working with archives, museums, historic sites, attorneys, and other relevant professionals. Students may not duplicate work in Hist 4940.

HIST 4990-4999 - Senior Seminar

Sem. 3. Credit 3.

Prerequisite: HIST 3410 and Junior or Senior standing as a History major. Must be taken at TTU, no transfer credit allowed. Intensive experience in research, writing, and oral presentation of a selected historical topic.

Honors

HON 1010 - Introduction to Honors

Credit 1.

Prerequisite: Consent of Honors Program director. An introduction to the Honors Program and to the University, taught by the Honors directors and outstanding faculty.

HON 2010 - Special Topics

Credit 1, 2, 3.

Prerequisite: Consent of Honors Program director. A non-departmental course on self-development for Honors students approved by the Honors Council.

HON 2020 - Special Topics

Credit 1, 2, 3.

Prerequisite: Consent of Honors Program director. Non-departmental special topics approved by the Honors Council.

HON 2042 - Honors Computer Intern

Int. 2-3. Credit 2-3.

Students may take this course up to three times.

HON 2043 - Honors Computer Intern

Int. 2-3. Credit 2-3.

Students may take this course up to three times.

HON 2051 - Peer Mentoring

Int. 1-2. Credit 1-2.

Students may take this course up to three times.

HON 2052 - Peer Mentoring

Int. 1-2. Credit 1-2.

Students may take this course up to three times.

HON 2063 - Director Intern

Int. 3. Credit 3.

Students may take this course up to three times.

HON 2090 - Special Topics

Credit 1, 2, 3.

Prerequisite: Consent of Honors Program director. Non-departmental special topics approved by the Honors Council.

HON 2171 - Honors Leadership Development

Sem. 1-2. Credit 1-2.

Prerequisite: Permission of the Honors Director. Students may take this course up to three times.

HON 2172 - Honors Leadership Development

Sem. 1-2. Credit 1-2.

Prerequisite: Permission of the Honors Director. Students may take this course up to three times.

HON 4011 - Colloquium

Credit 1, 2, 3.

Prerequisite: Consent of the Honors Program director. A non-departmental course for Honors students on a topic approved by the Honors Council, directed by a member of the Honors faculty.

HON 4012 - Colloquium

Credit 1, 2, 3.

Prerequisite: Consent of the Honors Program director. A non-departmental course for Honors students on a topic approved by the Honors Council, directed by a member of the Honors faculty.

HON 4013 - Colloquium

Credit 1, 2, 3.

Prerequisite: Consent of the Honors Program director. A non-departmental course for Honors students on a topic approved by the Honors Council, directed by a member of the Honors faculty.

HON 4021 - Directed Studies

Credit 1, 2, 3.

Prerequisite: Consent of the Honors director. A non-departmental course of independent study available to Honors students on an individual basis.

HON 4022 - Directed Studies

Credit 1, 2, 3.

Prerequisite: Consent of the Honors director. A non-departmental course of independent study available to Honors students on an individual basis.

HON 4023 - Directed Studies

Credit 1, 2, 3.

Prerequisite: Consent of the Honors director. A non-departmental course of independent study available to Honors students on an individual basis.

HON 4033 - Research for Thesis

Credit 3.

Prerequisite: Consent of the Honors Director. Students complete a 30-page literature review and prospectus for an Honors thesis.

HON 4043 - Honors Thesis

Credit 3.

Prerequisite: Consent of the Honors Director. Students use material from HON 4033 and complete and defend an Honors thesis.

Human Ecology, Core

HEC 1005 - Introduction to Human Ecology

Lec. 1. Credit 1.

History, philosophy, trends and professional issues for the discipline of Human Ecology/Family and Consumer Sciences. Exploration of career opportunities and connection to professional organizations.

HEC 1010 - Life Span Development

Lec. 3. Credit 3.

Development of individuals and families across the life span and factors that influence this development. Focus on biological, cognitive, and socio-emotional processes.

HEC 1020 - Social and Professional Etiquette

Lec. 1. Credit 1.

Appropriate social and professional standards of behavior as applied to the family, community and workplace environments.

HEC 1030 - Introduction to Nutrition

Lec. 2. Credit 2.

Principles of basic nutrition for personal lifestyle choices and selection of foods for promotion and maintenance of health throughout the lifespan. HEC 1030 cannot be substituted for HEC 2020.

HEC 2020 - Nutrition for Health Sciences

Lec. 3. Credit 3.

Prerequisite: Completion of 15 credit hours. Principles of nutrition. Emphasis upon the function, food sources,

recommended intake and assimilation of each of the six nutrient classes. HEC 1030 cannot be substituted for HEC 2020.

HEC 2041 - Aspects of Housing and Furnishings

Lec. 3. Credit 3.

Designed environment with emphasis on interior components of the house and the impact on individuals and families.

HEC 2065 - Families in Society

Lec. 3. Credit 3.

The family as a social system. Exploration of ecological systems perspective to understand family-community relationships, including emphasis on children with special needs. Identify globalization of societal trends affecting families. HEC 2065 is not a substitute for HEC 2060.

HEC 3011 - Consumer Economics

Lec. 3. Credit 3.

Prerequisite: Junior or Senior standing. Management of individual and family resources with emphasis on the production, allocation and consumption of goods and services.

Human Ecology, General Human Ecology Courses

HEC 4900 - Special Topics

Credit 1-7.

Prerequisite: Departmental approval. Research in contemporary developments in human ecology. May be repeated. Maximum seven hours.

HEC 4920 - Study Tour

Lec. 3. Credit 1-3.

Study and observation of consumer services and product industries. May be repeated.

HEC 4960 - Independent Study in Human Ecology

Credit 1, 2, 3.

Prerequisite: Consent of instructor. Special study of an approved topic (area) within Human Ecology under the supervision of a member of the human ecology faculty. Up to six credit hours may be earned by independent study.

HEC 4990 - Internship

Credit 3, 6, 8, 12.

Prerequisite: Departmental approval. Minimum overall GPA 2.5. Minimum grade of B in upper division Human

Ecology courses. Supervised practical experience in a variety of professional settings.

Human Ecology, Child Development and Family Relations

HEC 2200 - Development of Young Children: Conception to Age 6

Lec. 3. Credit 3.

Basic principles and theories of child development from conception to age six, with emphasis on hereditary and environmental factors influencing development, and the importance of developmentally appropriate practices. Course includes approximately 8-10 hours of case study with a child below the age of six.

HEC 2510 - Foundations of Play

Lec. 2. Lab. 1. Credit 3.

Prerequisite: HEC 1010 or HEC 2200. Emphasis on the importance of play as related to developmental levels of young children (birth-9 years old) and to appropriate settings.

HEC 3066 - Family Violence across the Lifespan

Lec. 3. Credit 3.

Prerequisite: HEC 2065, HEC Major and Junior or Senior Standing. A comprehensive review of family violence, abuse and maltreatment across the lifespan using a systems/ecological perspective.

HEC 3100 - Intercultural Competence

Lec. 3. Credit 3.

Prerequisite: HEC 2065 and Junior or Senior Standing. Importance of intercultural competence in order to facilitate tolerance across different cultures and connect across diverse cultures.

HEC 3500 - Development: Middle Childhood/Adolescence

Lec. 3. Credit 3.

Basic principles of physical, cognitive, and psychosocial development in middle childhood and adolescence; ages six through eighteen. Addresses factors that contribute to challenges in middle childhood and adolescent development.

HEC 3520 - Parent Education and Child Guidance

Lec. 2. Credit 2.

Prerequisite: HEC 2200 with a grade of C or better. Parental involvement in the education of children;

communication, decision-making, and the learning-valuing process.

HEC 3660 - Interpersonal Relationships

Lec. 3. Credit 3.

Prerequisite: HEC 2065. An in-depth exploration into the diverse and multidisciplinary field of interpersonal relationships.

HEC 3700 - Development: Young Adulthood/Aging

Lec. 3. Credit 3.

Prerequisite: HEC Major, Junior or Senior classification. Development and change from young adulthood through aging. Programs serving adults and the aging population.

HEC 4065 - Social Policy for Children and Families

Lec. 3. Credit 3.

Prerequisite: HEC 2065. An understanding of the legal issues, policies and laws influencing the well-being of children and families.

HEC 4600 - Theories in Family Development and Relationships

Lec. 3. Credit 3.

Prerequisite: HEC Major/Junior or Senior classification. Examination of existing theoretical frameworks to provide a context for understanding contemporary families in the complex social world. Family development and relationships, diversity in contemporary settings is emphasized; application of a framework in analysis of interaction and the dynamics of families.

HEC 4610 - Families: Normative/Catastrophic Issues

Lec. 3. Credit 3.

Prerequisite: Junior or Senior standing; HEC 2065. In depth study of family stress and effective coping mechanisms that relate to normative transitions and crisis events.

HEC 4630 - Family Life Education

Lec. 3. Credit 3.

Prerequisite: HEC 2065; Junior or Senior Standing in Human Ecology. An understanding of the general philosophy and broad principles of family life education in conjunction with the ability to plan, implement, and evaluate such educational programs.

HEC 4910 - Internship in Child Development and Family Relations

Credit 6, 8, 12.

Prerequisite: Department approval. Minimum Overall GPA 2.75. Minimum overall GPA of 3.0 in Human Ecology courses. Approval of advisor to include: analysis of coursework, application, and placement at facility. Supervised practical experience in a variety of professional settings.

Human Ecology, Child Life

HEC 2250 - Child Life: Theory and Practice

Lec. 3. Credit 3.

Introduction to the field of child life, the role of the Certified Child Life Specialist with children and families, theoretical foundations, professional practice, overview of Association of Child Life Professionals, certification eligibility requirements and process.

HEC 2550 - Children in Health Care

Lec. 3. Credit 3.

Explore children and families' experiences and reactions to healthcare encounters. Meeting children and family's psychosocial needs during healthcare experiences.

HEC 3550 - Child Life Assessment of Children and Families

Lec. 3. Credit 3.

Prerequisite: HEC 2250 and HEC 2550. Child Life assessment techniques for children and families in healthcare including groups of children, signs of stress, and documentation of assessment.

HEC 3560 - Child Life Intervention Strategies

Lec. 2. Lab. 1. Credit 3.

Prerequisite: HEC 3550. Child Life clinical and play interventions to meet the needs of children and families during health care experiences.

HEC 3565 - Loss and Bereavement for Children and Families

Lec. 3. Credit 3.

Prerequisite: HEC 2065 and HEC 2200; Junior or Senior Standing. Topics including loss, death, grief, and bereavement with focused application on children and families. Developmentally based psychosocial care provision will be integrated.

HEC 3570 - Child Life Practicum

Credit 1.

Prerequisite or corequisite: HEC 3560. Applied service

learning experience with children and families in a healthcare setting.

HEC 3591 - Introduction to Child Life Clinical Experience

Lec. 2. Credit 2.

Corequisite: HEC 3550. Preparation for child life practicum and clinical experience including application deadlines and process, on-site or phone interviews, content areas to discuss, and communicating for success in earning a service learning placement in a pediatric health care setting. Emphasis on internship and practicum expectations set by Child Life Council.

HEC 4550 - Research Methods and Professional Aspects of Child Life

Lec. 3. Credit 3.

Prerequisite: HEC 3560. Professionalism, program development including administration, research methods appropriate to child life clinical practice, and various roles of supervision within the field of Child Life in preparation for a Child Life internship and the national certification exam.

HEC 4590 - Child Life Clinical Experience

Credit 12.

Prerequisite: Senior Standing, HEC 3570 and HEC 4550. Supervised clinical (internship) experience in a health care facility to develop clinical child life skills. Direct supervision by a Certified Child Life Specialist in good standing with and meeting supervisor qualifications of the Association of Child Life Professionals is required. In order to meet the Association of Child Life Professional's eligibility requirements to sit for the Professional Child Life Certification Exam, the child life clinical experience must be a minimum of 600 hours.

Human Ecology, Family and Consumer Sciences Education

HEC 2800 - Introduction to Teaching Family and Consumer Sciences

Lec. 2. Lab. 2. Credit 3.

Responsibilities of the family and consumer sciences teacher in the secondary school. Includes observation and participation in local schools.

HEC 3805 - Materials and Methods of Teaching Family and Consumer Sciences Education

Lec. 3. Credit 3.

Prerequisite: Admission to the Teacher Education Program and 20 hours of Human Ecology courses.

Selection, use and evaluation of learning experiences and materials, programming planning. Information regarding occupational licensure.

HEC 3812 - Practicum in Family and Consumer Sciences

Lab. 4. Credit 2.

Prerequisite or corequisite: HEC 3805. Observation and supervised teaching and participation in Family and Consumer Sciences Educational settings.

HEC 3841 - Occupational Family and Consumer Sciences

Lec. 2. Credit 1.

Prerequisite: HEC 2800. Organization and operation of Occupational Family and Consumer Sciences Programs at high school and adult levels.

HEC 4871 - Residency I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: HEC 4872. Performance based clinical experience in authentic settings involving planning appropriate instruction based on student's needs, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice.

A grade of B is required to meet degree requirements.

HEC 4872 - Professional Seminar I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: HEC 4871. Residency I candidates will develop engaging strategies that support and meet the needs of all learners. Candidates will identify and learn to implement engaging strategies related to students' developmental, cultural and socioeconomic factors.

HEC 4881 - Residency II

Credit 10.

Prerequisite: Full admission to the Teacher Education Program. HEC 4871 with a grade of B. Corequisite: HEC 4882. Performance based full time clinical experience in authentic settings involving planning appropriate instruction based on student's needs, demonstrating effective instructional strategies, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A grade of B is required to meet degree requirements.

HEC 4882 - Professional Seminar II

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: HEC 4881. Seminar for residency II candidates supporting professional development in areas of planning, assessment, instruction, classroom management, communication and reflection.

Human Ecology, Food Systems Administration

HEC 3390 - Purchasing in Food Service Management

Lec. 3. Credit 3.

Prerequisite or corequisite: HEC 2020. Foundations of purchasing in the foodservice environment to include: value analysis, forecasting, specification development and market research.

HEC 3610 - Food Safety in Agritourism - Planning

Cross-listing: (AGRN)

Lec. 2. Lab. 1. Credit 3.

Introductory course in food safety as applied to the planning, production, and processing of cool season crops using experiential learning techniques. Food and farm safety regulations as related to the Agritourism industry. Students earn pesticide handler certification.

HEC 3620 - Food Safety in Agritourism - Growing and Harvesting

Cross-listing: (AGRN)

Lec. 2. Lab. 1. Credit 3.

Prerequisite: HEC 3610. Further application of food and farm principles and regulations, with emphasis on planning, production, and processing of warm season crops. Students participate in dissemination of raw and processed products in various Agritourism settings.

HEC 3630 - Food Safety in Agritourism - Post-Harvest

Cross-listing: (AGRN)

Lec. 2. Lab. 1. Credit 3.

Prerequisite: HEC 3620. Emphasis on post-harvest handling and storage of crops. Safe processing of agricultural products using traditional techniques. Students will demonstrate processing techniques in a variety of Agritourism settings.

HEC 4254 - Field Experience in School Nutrition

Credit 6.

Prerequisite: HEC 3240 and HEC 4242. Supervised work experience in a school nutrition setting.

HEC 4993 - Field Experience--Environmental Health Science

Credit 6.

Prerequisite: HEC 4242, HEC Major and Senior Standing. Supervised work experience with an Environmental Health Science professional for application of sanitation, inspection, disease control, and quality control skills. Course may be repeated one time.

HEC 4995 - Field Experience—Food Systems

Credit 6.

Prerequisite: HEC 4242, HEC Major and Senior Standing. Supervised work experience in a food related organization for application of food service, inspection, or quality control skills. Course may be repeated one time.

Human Ecology, Housing and Design

HEC 2411 - Practicum: Housing and Design

Credit 1.

Prerequisite: Departmental approval. Applied service learning and work experience in a housing and design setting.

HEC 2421 - Architectural Graphics and Presentation Techniques

Lec. 2. Lab. 2. Credit 3.

Prerequisite: HEC 2041. Basic architectural drafting including graphics and symbols for residential floor plans and light construction.

HEC 2431 - Residential Design I

Lec. 2. Lab. 2. Credit 3.

Prerequisite: Grade of C or better in HEC 2421. Fundamental execution of residential design problems including perspectives, floor plans and renderings using both hand and computer techniques.

HEC 2440 - Computer Aided Design of Residences

Lec. 1. Lab. 4. Credit 3.

Prerequisite: HEC 2421. An introduction to concepts and methods of computer-aided design in residences.

HEC 2460 - Interior Architecture Codes and Standards

Lec. 2. Credit 2.

Prerequisite: HEC 2421. Survey of interior architecture codes and standards including their application and implementation as required by law.

HEC 3431 - Residential Design II

Lec. 2. Lab. 2. Credit 3.

Prerequisite: Grade of C or better in HEC 2431. Space planning of residences with emphasis on presentations through floor plans, elevations, perspectives, and sample boards.

HEC 4450 - Commercial Design

Lec. 2. Lab. 2. Credit 3.

Prerequisite: Three credits in Math, COMM 2025, HEC 2440, and grade of C or better in HEC 3431. Various media for planning and rendering interior spaces for the commercial environment. Portfolio preparation and visual developmental skills are attained. Submission of resume and portfolio.

HEC 4460 - Historical and Contemporary Architecture and Furnishings

Lec. 3. Credit 3

Prerequisite: HEC 2041. Overview of architecture, interior design, and furnishings from Ancient Egyptian period to present.

Human Ecology, Merchandising and Design

HEC 1110 - Concepts of Design

Lec. 3. Credit 3.

Exploration of how design elements and principles influence design, both theoretically and practically.

HEC 1150 - Analysis of Apparel and Findings

Lec. 3. Credit 3.

Prerequisite: HEC 1100. Learn to work both individually and collaboratively to accomplish learning goals and a deeper understanding of the analysis of apparel and furnishings and the surrounding factors

HEC 2300 - Tailoring

Lec. 1. Lab. 4. Credit 3.

Prerequisite: HEC 2355. Evaluation and use of tailoring techniques in the selection, fitting, and construction of garments.

HEC 2311 - Practicum: Merchandising and Design

Credit 1.

Prerequisite: Departmental approval. Work experience in a fashion merchandising setting.

HEC 2355 - Clothing Construction

Lec. 1. Lab. 4. Credit 3.

Prerequisite: Minimum grade of C in HEC 1100 and

HEC 1150. Theories of apparel construction, principles of fitting, and their application to garment construction.

HEC 2365 - Social Media in the Workplace

Lec. 1. Credit 1.

Practical exploration of social media principles and practices, towards developing meaningful results and marketing strategies for business applications. Examination of the implications of using social media in the workplace and how it may be separated from personal communication.

HEC 3300 - Flat Pattern

Lec. 1. Lab. 4. Credit 3.

Prerequisite: HEC 2355. Apparel design from sketching to pattern making to garment completion.

HEC 3310 - Textiles I

Lec. 2. Lab. 2. Credit 3.

Prerequisite: Grade of C or better in MATH 1010 or MATH 1130 or MATH 1530, CHEM 1010, CHEM 1020. Fibers, yarns, fabrics, finishes, and applied design related to the selection, evaluation, use and care of textile products.

HEC 3320 - Textiles II

Lec. 2. Lab. 2. Credit 3.

Prerequisite: Grade of C or better in HEC 3310. Problems involving fiber and fabric identification, textile performance, end-use and care, legislation and standardization in the textile/apparel industry.

HEC 3350 - Merchandising I

Lec. 3. Credit 3.

Prerequisite: HEC 1150. Introduction to the merchandising of apparel and home furnishing products.

HEC 4300 - Draping

Lec. 1. Lab. 4. Credit 3.

Prerequisite: HEC 2355 and instructor approval. Discovery and application of draping techniques for apparel design and pattern making.

HEC 4301 - Computer Aided Apparel Design

Lec. 1. Lab. 4. Credit 3.

Prerequisite: HEC 2355 and instructor approval. Development and application of garment design and construction techniques using CAD software.

HEC 4315 - Global Social Responsibility

Lec. 3. Credit 3.

Introspective examination of current issues of social responsibility in a global economy, with an emphasis placed on fair labor practices, child labor laws, and sustainability.

HEC 4320 - Merchandise Promotion and Advertising

Lec. 3. Credit 3.

Prerequisite: HEC 3350. Communication of product information through special promotions and advertisements.

HEC 4325 - Sustainable Apparel

Lec. 1., Lab. 4. Credit 3.

Prerequisite: HEC 2355 or consent of instructor. Design and construction of sustainable apparel and textile products with focus on sustainability, construction techniques, designers, and manufacturers of sustainable textile products.

HEC 4340 - History of Furnishings and Dress

Lec. 3. Credit 3.

Prerequisite: HEC 1150. Study of the forms and functions of architecture, furnishings, and dress from ancient times to present day.

HEC 4360 - Merchandising II

Lec. 3. Credit 3.

Prerequisite: HEC 3350 and MATH 1010. Principles of merchandising including merchandise planning and decision making. Emphasis on the role of the buyer in case studies.

Human Ecology, Nutrition and Dietetics

HEC 1045 - Sports Nutrition and Wellness

Lec. 1. Credit 0.

Prerequisite: Enrolled as varsity TTU Student-Athlete. Principles of sports nutrition for wellness and performance.

HEC 2220 - Medical Terminology for the Human Sciences

Credit 1.

Prerequisite: Anatomy & Physiology course. This course provides students with an understanding of the terminology used in health care and wellness programs.

HEC 2240 - Food Preparation and Management

Lec. 2. Lab. 4. Credit 4.

Prerequisite or corequisite: HEC 1030 or HEC 2020. Scientific principles of food preparation and management including standard techniques, nutrient retention, menu planning, food purchasing, and meal service.

HEC 2611 - Sports Nutrition Practicum

Credit 1, 2, 3.
Prerequisite: HEC 1030 or HEC 2020. Consent of instructor. Application of sports nutrition principles in an applied setting.

HEC 3201 - Community Nutrition

Lec. 3. Credit 3.
Prerequisite: HEC 1030 or HEC 2020. Cultural food patterns; nutrition education assessment, implementation, and evaluation of community needs at local level; and the study of delivery systems of nutrition services at the local, state, federal, and international levels.

HEC 3240 - Quantity Food Production

Lec. 2. Lab. 4. Credit 4.
Prerequisite: HEC 2240 and three semester hours of math. Management and preparation of quality food in quantity, menu planning, recipe standardization, procurement, safety, sanitation, and food costing.

HEC 3270 - Nutrition in Disease

Lec. 3. Credit 3.
Prerequisite: Grade of C or better in HEC 2020 and BIOL 2350 and admission to the HEC-DPD program. Principles of clinical nutrition relative to prevention and treatment of disease with dietary modifications.

HEC 3290 - Nutrition through the Life Cycle

Lec. 3. Credit 3.
Prerequisite: HEC 1030 or HEC 2020. Nutrition needs throughout the life cycle, from preconception through the end of life. Review of nutrient and energy needs, assessment of nutritional status and consequences of inadequate nutrition at each stage of life.

HEC 4200 - Advanced Nutrition

Lec. 3. Credit 3.
Prerequisite: HEC 2020, CHEM 3005, BIOL 2350 and admission to the HEC-DPD program. Interrelationships of nutrients in metabolism at the cellular level. Current issues in nutrition.

HEC 4220 - Research in Food Science and Nutrition

Credit 2.
Prerequisite: Departmental approval. Independent work for students with special ability. May be repeated for a total of six credits when content varies.

HEC 4242 - Food Systems Administration

Lec. 3. Credit 3.
Prerequisite: HEC 2240 and HEC 3240. Systems approach to food service management; facilities, financial, personnel, equipment, and legal issues in food service.

HEC 4271 - Medical Nutrition Therapy

Lec. 3. Credit 3.
Prerequisite: HEC 3270. Prerequisite or corequisite: HEC 4200. Medical nutrition therapy and nutritional status assessment.

HEC 4272 - Clinical Dietetics

Lec. 3. Credit 3.
Prerequisite: HEC 4200, HEC 4271, HEC Major and Senior Standing. Application of medical nutrition therapy in a supervised environment and practice setting.

HEC 4925 - Nutrition Counseling and Education

Lec. 3. Credit 3.
Prerequisite: HEC 2020, HEC 3270. Identification and application of key communication principles used for nutrition counseling and education in a variety of settings and for diverse populations.

HEC 4940 - Nutrition, Fitness and Wellness

Lec. 2. Credit 2.
Prerequisite: HEC 1030 or HEC 2020. Basic principles of wellness promotion through exercise and nutrition; assessment and intervention strategies are included.

HEC 4994 - Field Experience—Health Care

Credit 3.
Prerequisite: HEC 4242, HEC 4272 and Senior Standing. Supervised work experience in a health care facility to develop medical nutrition therapy skills. Course may be repeated one time.

Instructional Leadership

INSL 4280 - Legal Aspects

Lec. 1. Credit 1.
Special topics concerning school law and legal issues in education presented in workshop and seminar formats.

Students may repeat the course for credit for a maximum of three credit hours.

Interdisciplinary Studies

LIST 1000 - FLS International Course

Lec. 1. Credit 1.

Prerequisite: LIST 1000 is created for the FLS Core Courses offered in nine levels of proficiency. In the core course, students learn the skills of speaking, listening, reading and writing in an integrated manner. LIST 1000 is reserved for participants in the Intensive English Language Program and is not intended for degree seeking students. Credits may not be applied to a degree program. May be repeated up to 6 times.

LIST 1090 - FLS International Course

Lec. 1. Credit 1.

LIST 1090 is created for the FLS Core Courses offered in nine levels of proficiency. In the core course, students learn the skills of speaking, listening, reading and writing in an integrated manner. LIST 1090 is reserved for participants in the Intensive English Language Program and is not intended for degree seeking students. **Credits may not be applied to a degree program.** May be repeated up to 6 times.

LIST 1091 - Special Topics

Credit 1.

Consent of advisor and Dean of Interdisciplinary Studies.

LIST 1092 - Special Topics

Credit 2.

Consent of advisor and Dean of Interdisciplinary Studies.

LIST 1093 - Special Topics

Credit 3.

Consent of advisor and Dean of Interdisciplinary Studies.

LIST 2091 - Service Learning

Lec. 1. Credit 1.

This course provides students the opportunity to engage in a Service Learning Project within the community. Students will have the opportunity to complete twenty service hours at a not for profit organizations, while gaining work experience for the future. In addition to the service hours, students are required to read a textbook related to service learning, complete journal entries, and write reflective essays relating to the work experiences to the text.

LIST 2093 - Service Learning

Lec. 3. Credit 3.

This course provides students the opportunity to engage in a Service Learning Project within the community. Students will have the opportunity to complete sixty service hours at a not for profit organizations, while gaining work experience for the future. In addition to the service hours, students are required to read a text book related to service learning, complete journal entries, and write reflective essays relating to the work experiences to the text.

LIST 2300 - Academic and Community Connections

Lec. 1. Credit 1.

The purpose of this course is to introduce students to concepts and practices that positively affect academic and community engagement. Understanding that the student athlete experience has some unique aspects, the course emphasizes the tools and practices that can positively affect this experience. The course will include both in-class sessions led by various presenters, and an outside-of-class service-learning component. May be repeated up to 4 times.

LIST 2880 - Credit for Prior Learning

Credit 1-12.

Prior learning credit for college-level, credit-worthy learning attained outside of a higher-education context. Credit is earned through a portfolio assessment: students may submit a learning portfolio to the College of Interdisciplinary Studies that is assessed by a multidisciplinary faculty assessment team. LIST 2880 credit is at the lower division level.

LIST 3093 - Service Learning

Lec. 3. Credit 3.

This course provides students the opportunity to engage in a Service Learning Project within the community. Students will have the opportunity to complete sixty service hours at a not for profit organizations, while gaining work experience for the future. In addition to the service hours, students are required to read a text book related to service learning, complete journal entries, write reflective essays relating the work experiences to the text, and compile an annotated bibliography relating research articles to the text.

LIST 3100 - Critical Thinking and Problem Solving

Lec. 3. Credit 3.

The purpose of this course is to introduce students to basic approaches to problem solving, and apply those

approaches to real-world problems. Topics will be covered utilizing a variety of teaching methods: lecture/discussion, cooperative learning/group problem solving, projects, and individual problem-solving exercises.

LIST 3210 - Youth Studies

Lec. 3. Credit 3.

The course will examine theories of factors associated with positive and negative outcomes in children and adolescents. Special attention will be given to resilience factors that help overcome adversity. Students will be able to explain and implement best practices in intervening to enhance the development of positive outcomes for children and adolescents.

LIST 3220 - Intimate Relationships

Lec. 3. Credit 3.

The course will examine the social, cognitive, emotional, and physical factors of intimate relationships. The attachment relationships examined will range from parent-child bonds to friendships to marriage. Emphasis will be placed on sexuality, and students will be able to understand the physiological components of sexual expression as well as be able to articulately and respectfully discuss competing historic and contemporary social views related to intimate relationships.

LIST 3300 - Workplace Etiquette

Lec. 3. Credit 3.

The purpose of this course is to introduce students to professional skills and conduct that will help in job acquisition and advancement.

LIST 3410 - Team Building and Workplace Dynamics

Lec. 3. Credit 3.

The purpose of this course is to better understand the function of teams in workplace settings. Emphasis will be placed on applying theory to practice.

LIST 3500 - Non-Profit Leadership

Lec. 3. Credit 3.

This course is designed to provide an introduction to nonprofit organizations and the roles they play in society, as well as the various elements involved in non-profit leadership and governance.

LIST 3600 - Concepts of Caregiving

Lec. 3. Credit 3.

This course examines the concepts of caregiving both

personally and professionally. This includes roles of caregiving, respite care, crisis management, personal connection, ethical boundaries, cultural aspects, insurance, and legal issues. This course will not only explore the traditional theory of caregiving but will also focus on aiding students in the development of their own personally-centered approaches to caregiving in their personal and professional environment.

LIST 3610 - Aging, Home Safety and Equipment Use for Caregiving

Lec. 3. Credit 3.

This course examines the reality and functional requirements of aging and caregiving both personally and professionally. This includes caring for the caregiver, normal aging, home assessment and modification, body mechanics/patient handling, equipment and use, insurance, building a professional clinical network, and signs/symptoms of distress/most common risk factors for re-hospitalization. This course will not only explore traditional modes of caregiving but will also focus on aiding students and caregivers in the development of their own real-world approaches to caregiving in their personal and professional environment.

LIST 3880 - Credit for Prior Learning

Credit 1-12.

Prior learning credit for college-level, credit-worthy learning attained outside of a higher-education context. Credit is earned through a portfolio assessment: students may submit a learning portfolio to the College of Interdisciplinary Studies that is assessed by a multidisciplinary faculty assessment team. LIST 3880 credit is at the upper division level.

LIST 3990 - Innovation and Entrepreneurship Studies

Lec. 0. Credit 0.

The purpose of this course is to introduce students to methods and mindsets for creating a start-up business. By registering for LIST 3990, students declare intent to pursue the Certificate in Innovation and Entrepreneurship.

LIST 4041 - Directed Studies

Indep. St. 1. Credit 1.

Prerequisite: Consent of the instructor. Individualized directed studies where there is no appropriate course offering, under the supervision of a faculty mentor. Students may take up to 6 hours of Directed Studies, with different topics.

LIST 4042 - Directed Studies

Indep. St. 2. Credit 2.

Prerequisite: Consent of the instructor. Individualized directed studies where there is no appropriate course offering, under the supervision of a faculty mentor. Students may take up to 6 hours of Directed Studies, with different topics.

LIST 4043 - Directed Studies

Indep. St. 3. Credit 3.

Prerequisite: Consent of the instructor. Individualized directed studies where there is no appropriate course offering, under the supervision of a faculty mentor. Students may take up to 6 hours of Directed Studies, with different topics.

LIST 4050 - Sign Language I

Cross-listing: (SPED)

Lec. 3. Credit 3.

Introduction to and development of a basic vocabulary in Signed English concepts in the use of alternative methods of communication.

LIST 4090 - Sign Language II

Cross-listing: (SPED)

Lec. 3. Credit 3.

Prerequisite: LIST 4050. Continuation of vocabulary development in Signed English and appreciation of practical situations in various professional fields.

LIST 4093 - Special Topics

Credit 1, 2, 3.

Upper Division level study in a specific topic not commonly found in a discipline on campus, not to include work experience. May be repeated if topic is different. No more than a combined total of 9 hours of LIST 4091, 4092, and 4093 may be used for degree.

LIST 4100 - Adult Learning

Lec. 3. Credit 3.

Prerequisite: Junior or Senior status is recommended. Introduction to principles of adult learning and the application of these principles to teaching, training, and personal development.

LIST 4113 - PRST/LIST Internship

Lec. 3. Credit 3.

Prerequisite: Permission of instructor. Educational activity within an organization dealing with the type of work the student hopes to do upon graduation. The internship is a learning environment where the student is

treated as one of the employees but often does not have the pressures of being a full-time employee.

Class may be taken twice for a total of (6) credit hours. Interdisciplinary Studies majors may take up to (6) credit hours of internship.

LIST 4114 - PRST/LIST Internship

Lec. 4. Credit 4.

Prerequisite: Permission of instructor. Educational activity within an organization dealing with the type of work the student hopes to do upon graduation. The internship is a learning environment where the student is treated as one of the employees but often does not have the pressures of being a full-time employee. Interdisciplinary Studies majors may take up to (6) credit hours of internship.

LIST 4115 - PRST/LIST Internship

Lec. 5. Credit 5.

Prerequisite: Permission of instructor. Educational activity within an organization dealing with the type of work the student hopes to do upon graduation. The internship is a learning environment where the student is treated as one of the employees but often does not have the pressures of being a full-time employee. Interdisciplinary Studies majors may take up to (6) credit hours of internship.

LIST 4116 - PRST/LIST Internship

Lec. 6. Credit 6.

Prerequisite: Permission of instructor. Educational activity within an organization dealing with the type of work the student hopes to do upon graduation. The internship is a learning environment where the student is treated as one of the employees but often does not have the pressures of being a full-time employee. Interdisciplinary Studies majors may take up to (6) credit hours of internship.

LIST 4200 - Professional and Personal Integrity

Lec. 3. Credit 3.

Prerequisite: Junior or Senior status or permission of the instructor. Participants will explore methods for promoting personal and social wholeness. Based on the notion that a healthy society flows from healthy individuals, and by examining historical case studies and contemporary literature, the course will help students maximize personal potential by learning effective management of emotions, commitment to justice, and promoting behavior rooted in wisdom, kindness, and courage.

LIST 4300 - Workplace Performance

Lec. 3. Credit 3.

Prerequisite: Junior or Senior status or permission of the instructor. The purpose of this course is to introduce students to Industrial Management and the theories that inform management in the workplace. Topics will be covered utilizing a variety of teaching methods: lecture/discussion, cooperative learning/group problem solving, projects, and individual problem-solving exercises.

LIST 4340 - Technology for Presentations

Lec. 3. Credit 3.

Prerequisite: COMM 2025 or PC 2500. Development of knowledge and skills necessary for communication and presentations using various instructional technologies.

LIST 4440-4449 - Workshop

Lec. 1. Credit 1.

Workshop developed around a central theme. May be repeated with a different topic.

LIST 4600 - Advanced Caregiving

Lec. 3. Credit 3.

This course examines the concepts of caregiving both personally and professionally. Advanced issues examined to caregiving include: dementia, disease processes, difficult behaviors, details of Medicaid and Medicare, and estate/financial planning.

LIST 4850 - Topics in Organizational Development

Credit 3.

Concentration on a topic in Organization Development. May be repeated with different topics. No more than a total of nine hours of LIST 4850 may be used for degree.

LIST 4900-4909 - Special Topics in Innovation and Entrepreneurship

Lec. 1. Credit 1.

The purpose of this course is to study special topics in innovation and entrepreneurship development problems, customer discovery, minimally viable product prototyping, and planning and pitching for a small business through experiential learning activities, written works, and presentations. May be repeated under a different sub-title. Students may register for up to 3 hours of LIST 4900-4909 per semester. Up to 6 hours may be used to meet the Entrepreneurial Perspective requirement in the Certificate in Innovation and Entrepreneurship.

LIST 4921 - Special Topics

Lec. 1. Credit 1.

Seminar or lecture course on a selected topic, issue, or interest area.

Students may take up to 9 hours of 4921, 4922, 4923 combined, if they are different topics.

LIST 4922 - Special Topics

Lec. 2. Credit 2.

Seminar or lecture course on a selected topic, issue, or interest area.

Students may take up to 9 hours of 4921, 4922, 4923 combined, if they are different topics.

LIST 4923-4929 - Special Topics

Lec. 3. Credit 3.

Seminar or lecture course on a selected topic, issue, or interest area. Students may take up to 9 hours of 4921-4929 combined, if they are different topics.

LIST 4995 - Capstone Project

Cross-listing: (PRST 4995)

Lec. 3. Credit 3.

Prerequisite: Permission of instructor. Academic research or other creative activity resulting in a tangible product to demonstrate synthesis of student's coursework. This course is required for all PRST and LIST majors.

International Business and Cultures

IBC 4980 - Practicum

Credit 3-10.

Prerequisite: Junior or Senior standing and consent of advisor. Semester-long, practical experience with international trade or commerce. Credit assigned by advisor and monitored by the IBC Executive Committee.

IBC 4990 - International Experience

Lec. 3. Credit 3.

IBC 4990 develops students' understanding and knowledge of business practices in a foreign nation(s). Topics covered include social and cultural differences, national and regional political forces that influence business practices, and the internal economic environment and its impact on marketing, finance, organizational structure, and operations of businesses in the host country (countries).

Journalism

JOUR 2100 - Media Literacy and Society

Lec. 3. Credit 3.

This course will explore the historical development and current status of mass media from a consumer's point of view with the goal of improving media literacy skills. Topics relate to the construction and deconstruction of media messages and how they influence individuals, specialized and mass audiences, and society as a whole. Students develop global perspectives by encountering issues dealing with the relationship of the media to government, education, society, politics, economics, religion, culture, family, and the individual as well as the role and responsibility of a free press in a democratic society.

JOUR 2200 - Mass Communication in a Changing Society

Lec. 3. Credit 3.

Mass communications in a democracy. Trends in media, the government as friend and foe, legal problems, and the invasion of privacy. May include experience on the student media.

(COMM 1010, TTP Course)

JOUR 2220 - News Reporting and Copy Editing

Lec. 3. Credit 3.

Prerequisite: JOUR 2200. Basics of gathering and writing news. Introduction to copy editing and the Associated Press Stylebook. May include experiences on the student media.

JOUR 3350 - Newspaper Production and Design

Lec. 3. Credit 3.

Prerequisite: JOUR 2200. Typography and current trends in newspaper production and design.

JOUR 3370 - Fundamentals of Photojournalism

Lec. 3. Credit 3.

Prerequisite: JOUR 2200. An introduction to the technical, aesthetic and ethical aspects of digital photography with an emphasis on photojournalism and visual storytelling.

JOUR 3400 - Introduction to Broadcast Journalism

Lec. 3. Credit 3.

Prerequisite: JOUR 2200 and JOUR 2220. Electronic media with emphasis on news writing for radio and television. May include experience on the campus radio.

JOUR 3460 - Introduction to Public Relations

Lec. 3. Credit 3.

Prerequisite: JOUR 2200. Career opportunities in public relations. Historical, philosophical, and ethical aspects.

JOUR 3470 - Public Relations Writing

Lec. 3. Credit 3.

Prerequisite: JOUR 2200, JOUR 2220 and JOUR 3460. Public relations writing and publications. This course will examine how public relations practitioners effectively tailor messages to reach specific audiences with intended messages using various media.

JOUR 3500 - Multimedia Storytelling

Lec. 3. Credit 3.

Prerequisite: JOUR 2200 and JOUR 2220 or consent of instructor. An introductory course in multimedia tools for online content creation. Photography, audio, and video will be used for compelling reporting.

JOUR 3740 - Advertising Copy and Layout

Lec. 3. Credit 3.

Prerequisite: JOUR 2200. Advertising in current publications with emphasis on trends in copy and layout.

JOUR 3750 - History of Journalism

Lec. 3. Credit 3.

Prerequisite: JOUR 2200. The history of the press from colonial times to the present. Emphasis on major trends, persons, events.

JOUR 3770 - Law of Journalism

Lec. 3. Credit 3.

Prerequisite: JOUR 2200. The law of the press from colonial times to the present.

JOUR 4360 (5360) - Magazine Production and Design

Spring. Lec. 3. Credit 3.

Current trends in magazine production and design.

JOUR 4460 (5460) - Public Relations--Cases and Practices

Lec. 3. Credit 3.

Prerequisite: JOUR 3460 and either JOUR 3350 or JOUR 4360 (5360). Practical aspects of public relations emphasized. Case studies considered. Builds on knowledge and expertise acquired in JOUR 3460.

JOUR 4500 - Advanced Multimedia Storytelling

Lec. 3. Credit 3.

Prerequisite: JOUR 2200, JOUR 2220, a "C" or higher in JOUR 3500, or consent of instructor. A fast-paced course in content creation for the web and broadcast. May include experience on student media outlets. Associated Press style will be used.

JOUR 4710 - Literary Journalism

Lec. 3 Credit 3.

Prerequisite: JOUR 2200 and JOUR 2220. Instruction in the form of the literary essay--both short and book length--through both reading and writing literary essays. Course may be repeated for credit provided content is different.

JOUR 4820 (5820) - Advanced Reporting

Lec. 3. Credit 3.

Prerequisite: JOUR 2220. Writing and reporting for the commercial media. Students may serve as reporters for the campus newspaper.

JOUR 4830 (5830) - Feature Writing

Spring. Lec. 3. Credit 3.

Prerequisite: JOUR 2220. Recommended: JOUR 4820 (5820). Writing and marketing of feature stories, commentaries, and articles.

JOUR 4843 (5843) - Special Problems

Credit 3.

Prerequisite: Senior standing or consent of instructor. JOUR 2200 is a prerequisite for all other journalism courses. Independent work in mass media research and/or writing related to student academic and career goals.

JOUR 4846 (5846) - Special Problems

Credit 6.

Prerequisite: Senior standing or consent of instructor. JOUR 2200 is a prerequisite for all other journalism courses. Independent work in mass media research and/or writing related to student academic and career goals.

JOUR 4849 (5849) - Special Problems

Credit 9.

Prerequisite: Senior standing or consent of instructor. JOUR 2200 is a prerequisite for all other journalism courses. Independent work in mass media research and/or writing related to student academic and career goals.

JOUR 4853 (5853) - Internship

Credit 3.

Prerequisite: JOUR 2200 is a prerequisite for all other journalism courses. Part-time or full-time employment in a business, industrial, or institutional communications setting related to student academic and career goals.

JOUR 4856 (5856) - Internship

Credit 6.

Prerequisite: JOUR 2200 is a prerequisite for all other journalism courses. Part-time or full-time employment in a business, industrial, or institutional communications setting related to student academic and career goals.

JOUR 4859 (5859) - Internship

Credit 9.

Prerequisite: JOUR 2200 is a prerequisite for all other journalism courses. Part-time or full-time employment in a business, industrial, or institutional communications setting related to student academic and career goals.

JOUR 4930 (5930) - Advanced Copy Editing

Lec. 3. Credit 3.

Prerequisite: JOUR 2220. Additional training in editing copy. Laboratory work may be required on the university student newspaper.

Learning Support Program

READ 1010 - College Reading Improvement

Lec. 2. Lab. 2. Credit 3.

Placement by ACT Reading score less than 19 and/or by ACCUPLACER Next Generation Placement Reading score less than 250, by advisor recommendation, or by student self-placement. Improvement of reading skills includes vocabulary, spelling, comprehension, rate, main idea, supporting details, organization and relationships, and critical and strategic reading.

Students with a Reading requirement may be restricted in the number or type of high-reading-content classes they may take until they have removed the learning support requirement. High-reading-content classes include history, sociology, psychology, philosophy, literature, political science, and criminal justice. Attendance is required.

Withdrawal is not allowed except with special permission.

Students who self-place/volunteer for READ 1010 are not under such restrictions.

READ 1100 - Learning Support Lab for English Composition I and Reading

Lab. 1. Credit 0.

Placement by ACT English score less than 18 and/or by ACCUPLACER Next Generation Placement Exam

Writing score less than 250.

Learning Support Lab for English Composition I is provided through computer software (MyWritingLab), brief lectures, conferences, and one-on-one assistance conducted by Learning Support Program faculty and supervised teaching assistants. Topics covered include (1) basic grammar; (2) sentence skills; (3) punctuation, mechanics, and spelling; and (4) usage, style, and proofreading. After the students' learning paths are established indicating one, two, three, or all four modules to be completed, students are encouraged to attend the class regularly and to work outside of class to complete the requirements as soon as possible; this will allow them to apply what they have learned to their English 1010 papers and improve their chances of making good grades.

Attendance is required.

Withdrawal is not allowed except with special permission.

Library Science

LSCI 4000 (5000) - Information Sources

Lec. 2. Credit 2.

Selection, evaluation, and use of standard and current information sources for teachers, librarians, and children.

LSCI 4020 (5020) - Storytelling and Traditional Literature

Cross-listing: READ 4020 (5020)

Lec. 3. Credit 3.

Storytelling techniques and literature presentation through storytelling.

LSCI 4400 (5400) - Audio-Visual Aids to Teaching

Lec. 2. Credit 2.

Prerequisite: EDPY 2210. Survey of educational media available to educators with emphasis given to effective utilization.

LSCI 4530 (5530) - Books and Related Materials for Infants and Toddlers

Cross-listing: ECED 4530 (5530)

Lec. 1. Credit 1.

Survey of developmentally appropriate books and materials for infants and toddlers.

LSCI 4540 (5540) - Multiethnic Literature for Infants, Toddlers and Preschoolers

Cross-listing: READ 4540 (5540)

Lec. 1. Credit 1.

Introduction to preschool trade books and related materials reflecting an understanding of multiethnicity.

LSCI 4550 (5550) - Multiethnic Literature for Children

Cross-listing: READ 4550 (5550)

Lec. 1. Credit 1.

Introduction to children's trade books and related materials reflecting an understanding of multiethnicity.

LSCI 4560 (5560) - Multiethnic Literature for Adolescents and Adults

Cross-listing: READ 4560 (5560)

Lec. 1. Credit 1.

Introduction to adolescent and adult trade books and related materials reflecting an understanding of multiethnicity.

LSCI 4570 (5570) - Young Adult Literature

Cross-listing: READ 4570 (5570)

Lec. 3. Credit 3.

Survey of books and materials for middle level, high school students, and adults focusing on techniques to assist in reading these materials with understanding.

Linguistics

LING 4511 (5511) - Introduction to Descriptive Linguistics

Cross-listing: ENGL 4511 (5511)

Lec. 3. Credit 3.

Introduction to descriptive analysis of language: phonology, morphology, lexicon, and syntax.

LING 4521 (5521) - History of the English Language

Cross-listing: ENGL 4521 (5521)

Lec. 3. Credit 3.

History of the language from its origins to the present; emphasis upon historical development of English sounds, word structure, and syntax.

LING 4531 (5531) - Grammar and Language

Cross-listing: ENGL 4531 (5531)

Lec. 3. Credit 3.

Grammatical structure of English in relation to dialect and register with some emphasis on historical and potential changes in grammar.

LING 4541 (5541) - Topics in Linguistics/Language

Cross-listing: ENGL 4541 (5541)

Lec. 3. Credit 3.

Examination of specific aspects of language and/or linguistic study, such as Old and Middle English, the language of dialect literature or American English dialects. Course may be repeated provided the content is different each time.

LING 4561 (5561) - American English

Lec. 3. Credit 3.

This class will examine American English from multiple cultural and linguistic angles and allow the students to develop their own understanding of how the language around them shapes their lives.

Manufacturing and Engineering Technology

MET 1100 - Introduction to Manufacturing Engineering Technology

Lec. 1. Lab. 2. Credit 2.

Introduction to the materials and processes used in the manufacturing of metals, ceramics, polymers, composites and wood products.

MET 1835 - Applications of Math in Engineering Technology Lab

Lab. 2. Credit 1.

Prerequisite: MATH 1910 or MATH 1845. Use of integral and differential calculus with numerical applications for engineering technology.

MET 2000 - Occupational Safety

Lec. 2. Credit 2.

Occupational safety and health hazards associated with man-machine systems with emphasis on recognition, evaluation, and control of such hazards.

MET 2065 - Metal Manufacturing Technology

Lec. 1. Lab. 3. Credit 2.

Prerequisite: ENGR 1110, MET 1100 and MATH 1730 or (MATH 1710 + MATH 1720). Machine tool functions, use of hand tools, precision measurement, welding and fabrication of metals.

MET 2310 - Applied Fluid Power

Lec. 2. Credit 2.

Prerequisite: MATH 1730 or (MATH 1710 + MATH 1720). This course covers the basics of pneumatic, electro-pneumatic and hydraulic control circuits in automated system.

MET 2400 - Statics and Strength of Materials

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MATH 1730 or (MATH 1710 + MATH 1720) and PHYS 2010 or PHYS 2110 . This course is an introduction to concurrent force analyses, stresses, strains and combined stresses in structures and machines components.

MET 2615 - Engineering Technology Ethics and Professionalism

Lec. 1. Credit 1.

Prerequisite: Sophomore Standing. This course examines the values and ethics of a technological society and the input of the technologist into the decision-making process of a technological organization.

MET 2640 - Aviation Ground Instruction I

Lec. 3. Credit 3.

Basic theory and principles of flight, aircraft systems, and material for instruments. Completion of Ground School Certification Examination.

MET 2650 - Aviation Flight Instruction

Lec. 1. Lab. 4. Credit 3.

Prerequisite: MET 2640. This course will cover only the aeronautical knowledge and skills necessary to meet the requirements of a Private Pilot FAA Certificate. To meet FAA flight requirements, students should arrange and pay for their own flight lessons.

MET 3000 - Principles of Metal Casting

Lec. 1. Lab. 2. Credit 2.

Prerequisite: ENGR 1110, MET 1100, and ME 3110 or MET 3100. Corequisite: ME 3110 or MET 3100. Principles of molding and casting aluminum, bronze and gray iron. Use of cores, patterns and machine molding included.

MET 3060 - Computer Numerical Control Machining Practices

Lec. 2. Lab. 3. Credit 3.

Prerequisite: MET 2065. Theory of numerical control equipment and programming for machine setup and operation of CNC milling and turning equipment.

MET 3080 - Plastics Processing and Applications

Lec. 2. Lab. 2. Credit 3.

Prerequisite: Junior Standing and CHEM 1010. Studies in the use of plastic-related products with laboratory activities.

MET 3100 - Applied Physical Metallurgy

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 1100, CHEM 1010 or CHEM 1110. A study of the relationships between chemical compositions and structures on the properties of ferrous, non-ferrous metals and alloys used in manufacturing industry.

MET 3150 - Maintenance Technology I

Lec. 2. Credit 2.

Prerequisite: Junior Standing. Principles of organizing and controlling maintenance operations in industrial plants.

MET 3200 - Applied Electricity and Electronics

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MATH 1845. Corequisite: PHYS 2020. Fundamentals of electricity and electronics, basic circuits, motors, generators and power distribution, advanced electronic circuits, semiconductors and power supplies, electronic communication, and data systems.

MET 3260 - Industrial Electronics

Lec. 1. Lab. 2. Credit 2.

Prerequisite: MET 3200 or departmental approval. The fundamentals of process control, transducers, signal processing, feedback loops, activators, and analog and digital controllers.

MET 3301 - CAD for Technology

Lec. 1. Lab. 2. Credit 2.

Prerequisite: ENGR 1110. CAD techniques for industrial applications with laboratory experiences.

MET 3403 - Applied Machine Elements

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 2400 and MET 3301. Corequisite: ME 3110 or MET 3100. Static and dynamic properties of materials. Principles of machine elements calculations, components selection, assembly, and lubrication.

MET 3460 - Welding Technology

Lec. 1. Lab. 2. Credit 2.

Prerequisite: Junior Standing. Welding materials using current welding processes and techniques.

MET 3560 - Advanced Welding

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 2065.

MET 3700 - Manufacturing Cost Estimating

Lec. 2. Credit 2.

Prerequisite: Junior Standing. This is an experiential learning course where the students participate in solving an industrial problem. This course requires the application of computer-aided design, bill of materials,

manufacturing processes, process design, writing a report, and presentation of the results.

MET 3710 - Methods Design and Work Measurement

Lec. 2. Credit 2.

Prerequisite: Junior Standing. Introduction to concepts and the practice of methods improvement and work measurement for lean manufacturing.

MET 3740 - Six Sigma Tools and Techniques

Lec. 2. Credit 2.

Prerequisite: Junior Standing. Using Lean Six Sigma tools and techniques for enabling optimal performance in service industries including healthcare and distribution, manufacturing companies, and government.

MET 4000 - Advanced Foundry Technology

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3000. Study of advanced foundry processes, gating system design, die/pattern design and mechanization of foundry. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4060 (5060) - CNC Concepts, Advanced Techniques & Applications

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3060 or departmental approval. An in-depth study of programming systems, techniques and applications. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4210 (5210) - Programmable Logic Controllers and Process Control

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3260 or departmental approval. Programmable logic controllers (PLC's) and automated process control; design and implementation of an automatic controlled industrial process. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4220 (5220) - Industrial Automation and Robotics

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3260. Studies in the theory and application of industrial automation relating to manufacturing. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4250 (5250) - Applied Mechatronics

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3260 or consent of instructor.

Introduction to mechatronic systems; modeling of mixed mechatronic systems; microcontroller programming and interfacing; theory, selection and implementation of sensors and actuators commonly used in mechatronic systems; control architectures and case studies in mechatronic systems. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4300 (5300) - Advanced CAD Techniques

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3301 or departmental approval. An in-depth course using CAD as a design tool that examines multiview drawings, layers, dimensioning, blocks, and sectional views. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4310 (5310) - Plant Layout and Materials Handling

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3301, MET 3710 or departmental approval. An analysis of materials movement within industrial organizations. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4400 (5400) - Geometric Dimensioning and Tolerancing

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3301 or departmental approval. This course will cover the geometric conformance and tolerancing theory and application pertaining to ANSI/ASME 2009 Y 14.5 Standard via computer graphics and other electronic data systems for design, manufacture, verification, and similar processes. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4430 (5430) - Industrial Supervision

Lec. 3. Credit 3.

Prerequisite: Senior or Graduate Standing. Supervisory responsibilities in an organization and procedures for meeting these responsibilities. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4450 (5450) - Additive Manufacturing

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3301 or departmental approval. This course prepares students to create a rapid prototyping file from a computer aided design file, determine the prototype for the model or part, and create a production plan for the part. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4500 (5500) - Tool Design

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 2065, MET 3301 or departmental approval. This course covers an integrated treatment of tool design, specification and application by the use of standard tooling data. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4550 (5550) - Maintenance, Replacement and Reliability Engineering

Lec. 3. Credit 3.

Prerequisite: Senior or Graduate Standing in Engineering, Engineering Technology or Business. Reliability networks, failure mode and effect analysis, apportionment, availability, maintainability, fault trees and human reliability. Design project required.

MET 4600 (5600) - Product Design & Development

Lec. 3. Credit 3.

Prerequisite: Senior or Graduate Standing in Engineering, Engineering Technology or Business. This is a project-based course that covers modern tools and methods for product design and development. Topics include identifying customer needs, concept generation, product architecture, industrial design, and design-for-manufacturing.

MET 4620 - Senior Projects

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MET 3403, MET 3260 or departmental approval. This course is the capstone experience, which requires both teamwork and individual skills in identifying and solving an industrial problem. It requires the application of design, manufacturing processing, project management plan and public presentation of results.

MET 4650 (5650) - Lean Six Sigma Manufacturing

Lec. 3. Credit 3.

Prerequisite: Senior or Graduate Standing in Engineering, Engineering Technology or Business. Review of current engineering and technology

techniques relevant to manufacturing, service, quality and productivity. Design project required.

MET 4700 - Automation of Manufacturing Systems

Lec. 3. Credit 3.

Prerequisite: Senior or Graduate Standing in Engineering or Engineering Technology. General principles of operation and programming of automated systems. Automated assembly, automated manufacturing, and inspection systems. Control of automated manufacturing. Industrial logic systems and programmable logic controllers. Computer numerical control, industrial robotics, and computer integrated manufacturing. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

MET 4750 (5750) - Industrial Internet of Things (IIoT) for Smart Manufacturing

Lec. 3. Credit 3.

Prerequisite: MET 3260 and MET 4220 (5220). Concepts of IIoT and smart manufacturing (Industry 4.0). Connection and programming of popular IoT devices for data acquisition and analytics. Basic knowledge of industrial network security.

MET 4990 (5990) - Special Problems

Lec. 2. Lab. 2. Credit 3.

Prerequisite: Senior Standing. Investigations of industrial topics in the student's area of interest. May be taken under different subtitles to a maximum of six credits. A particular topic may be offered at most twice under the MET 4990 number. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

Marketing

MKT 3200 - Entrepreneurial Mindset

Cross-listing: (ENTR 3200)

Lec. 3. Credit 3.

This introductory course provides a framework of entrepreneurial thinking and acting. Specifically, this course aims to help students become more customer-oriented and opportunity-driven in acting on innovative ideas, serve as change agent, and learn leveraging resources while mitigating and managing risks. It further provides a basic infrastructure in business, so students can accomplish the eventual transition of successfully managing, financing and marketing the business venture and products/services in increasingly competitive global market places/spaces. Enrollment in Junior- or Senior-level MKT courses requires Junior Standing. All

Business majors must have completed the Basic Business Program.

MKT 3310 - Services Marketing

Lec. 3. Credit 3.

This course will focus on service organizations, and services marketing issues to make students aware of the unique challenges involved in marketing and managing organizations in sections such as finance, health care, entertainment, hospitality, professional services, retailing, education and transportation. Some of the specific topics will include understanding service processes, learning how to manage service encounters, consumer behavior in service settings, complaint handling, pricing and positioning of services, and balancing demand and capacity. Enrollment in Junior- or Senior-level MKT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

MKT 3400 - Principles of Marketing

Lec. 3. Credit 3.

Prerequisite: ECON 2010. Marketing in an economic system, including marketing strategy and marketing mix variables available to the marketing manager. Enrollment in Junior- or Senior-level MKT courses requires Junior Standing. All Business majors must have completed the Basic Business Program.

MKT 3430 - Advertising

Lec. 3. Credit 3.

Prerequisite: MKT 3400. Techniques and methods of advertising, including an analysis of major media. Emphasis on case studies and special projects involving integrated advertising campaigns and trends. Enrollment in junior- or senior-level MKT courses requires junior standing. All business majors must have completed the Basic Business Program.

MKT 3650 - Sales Management

Lec. 3. Credit 3.

Prerequisite: MKT 3400. Responsibilities and techniques of managing the sales force. Course includes case studies. Enrollment in junior- or senior-level MKT courses requires junior standing. All business majors must have completed the Basic Business Program.

MKT 3900 - Entrepreneurship/Small Business

Lec. 3. Credit 3.

Prerequisite: MKT 3400 or consent of instructor. An introduction to the process of new venture creation and the challenges of operating and growing a small

business. Enrollment in junior- or senior-level MKT courses requires junior standing. All business majors must have completed the Basic Business Program.

MKT 4100 - International Marketing

Lec. 3. Credit 3.

Prerequisite: MKT 3400. Focuses on the study of consumer behavior and buying cultures in all major regions of the world and relates the information to the creation of international marketing plans and strategies. Enrollment in junior- or senior-level MKT courses requires junior standing. All business majors must have completed the Basic Business Program.

MKT 4500 - Retail Marketing Management

Lec. 3. Credit 3.

Prerequisite: MKT 3400. Theory and practice of modern retail marketing. Included are merchandising, budgeting, store location and design, retail pricing decisions, product sourcing, and promotion strategies. Enrollment in junior- or senior-level MKT courses requires junior standing. All business majors must have completed the Basic Business Program.

MKT 4530 - Consumer Behavior

Lec. 3. Credit 3.

Prerequisite: MKT 3400 or permission of instructor. This course provides a comprehensive interdisciplinary framework of consumer behavior concepts and processes. It further enables students to apply what is learned to market analysis, product/service design, strategy and control of marketing programs. Enrollment in junior- or senior-level MKT courses requires junior standing. All business majors must have completed the Basic Business Program.

MKT 4550 - Business Marketing Management

Lec. 3. Credit 3.

Prerequisite: MKT 3400. Study of business marketing management including industrial buying practices, governmental buying, business services, institutional marketing, modern purchasing practices, TQM decision making, and inventorying, particularly JIT. Enrollment in junior- or senior-level MKT courses requires junior standing. All business majors must have completed the Basic Business Program.

MKT 4620 (5620) - Marketing Research

Lec. 3. Credit 3.

Prerequisite: MKT 3400 and ECON 3610. Information systems and traditional research through text and cases. Enrollment in junior- or senior-level MKT courses

requires junior standing. All business majors must have completed the Basic Business Program.

MKT 4730 (5730) - Marketing Strategy

Lec. 3. Credit 3.

Prerequisite: MKT 3400, BMGT 3510, and two marketing courses beyond MKT 3400. The role of the modern marketing manager in making marketing decisions and selecting strategies. Includes case studies. Enrollment in junior- or senior-level MKT courses requires junior standing. All business majors must have completed the Basic Business Program.

MKT 4900 - Special Topics in Marketing

Credit 3-6.

Prerequisite: MKT 3400 and approval of the instructor. Selected current topics in Marketing. Course may be taken more than once as topics change.

MKT 5200 - Basic Marketing

Lec. 3. Credit 3.

Structure of markets, techniques and tools available to the marketing manager, motivation of buyers.

Mathematics

MATH 1000 - Transitional Algebra

Rec. 3. Credit 3.

Exponents and roots; polynomials, rational, radical, and absolute value expressions; factoring; linear equations and inequalities; quadratic equations, graphing; functions.

MATH 1010 - Math for General Studies

Lec. 3. Credit 3.

Mathematics as applied to real-life problems selected from such topics as preference schemes for voting, fair division and apportionment methods, routing and scheduling problems, analysis of graphs, growth and symmetry, and counting problems.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1020 - First-Year Connections

Cross-listing: PHYS 1020

Rec. 2. Credit 1.

This course is intended as a bridge course for students entering TTU from high school. The course is designed to strengthen the student's connection to TTU, the College of Arts and Sciences, and the appropriate department (CSC, MATH, or PHYS) by focusing on the

enhancement of skills needed for academic success. This course engages the student in meaningful academic and non-academic out-of-the-classroom activities, as learning occurs both in and out of the classroom. It emphasizes critical thinking, the formation of academic and social goals and support groups, and time-management and study skills.

MATH 1130 - College Algebra

Lec. 3. Credit 3.

Review of algebra and coordinate geometry; functions; polynomial, rational, exponential, and logarithmic functions; systems of equations; binomial formula; counting (multiplication principle, permutations, and combinations); and conics. Credit towards graduation will not be given for MATH 1130 and MATH 1710 or for MATH 1130 and MATH 1730.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1410 - Number Concepts for Teachers

Lec. 3. Credit 3.

Prerequisite: Admission is restricted to students majoring in Elementary Education. Introduction to sets and operations on sets, properties and operations on whole numbers, integers, and rational and real numbers.

MATH 1420 - Geometry Concepts for Teachers

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 1410; Admission is restricted to students majoring in Elementary Education. Introduction to elements of probability and statistics, and basic concepts of Euclidean geometry including congruence, similarity, measurements, areas, and volumes.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1530 - Introductory Statistics

Lec. 3. Credit 3.

Descriptive statistics including measures of central location and variation, frequency distributions, histograms, and frequency polygons. Probability relating to elementary sample spaces, events, conditional probability, discrete and continuous type random variables, mathematical expectation, and the normal probability distribution. Inferential statistics relating to the confidence intervals and hypothesis test related to the mean and proportion.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1630 - Finite Mathematics

Lec. 3. Credit 3.

Brief review of basic algebra; introduction to probability; matrix algebra and linear programming; and applications to business and economics.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1710 - Pre-calculus Algebra

Lec. 3. Credit 3.

Prerequisite: ACT Math score of 22 or higher or equivalent placement exam score or C or better in MATH 1000. Review of algebra; relations and functions and their graphs, including polynomial and rational functions; conic sections; inequalities; arithmetic and geometric sequences and series. Credit will not be given for both MATH 1710 and MATH 1130 or for MATH 1710 and MATH 1730.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1720 - Pre-calculus Trigonometry

Lec. 3. Credit 3.

Prerequisite: ACT Math score of 22 or higher, or equivalent COMPASS score, or C or better in MATH 1000. Circular functions and radian measure, graphs of the trigonometric functions, trigonometric identities, and equations, the inverse trigonometric functions, polar coordinates. Applications involving triangles, vectors in the plane, and complex numbers. Credit will not be given for both MATH 1720 and MATH 1730.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1730 - Pre-calculus Mathematics

Lec. 5. Credit 5.

Prerequisite: ACT Math score of 25 or higher or equivalent COMPASS score. Two years of high school algebra, one year of high school geometry, and 12 weeks of trigonometry. Review of algebra and trigonometry; relations and functions and their graphs, including polynomial and rational functions; conic sections; inequalities; polar coordinates; complex numbers; and advanced topics in algebra. Credit will not be given for both MATH 1730 and any of MATH 1130, MATH 1710 and MATH 1720.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1830 - Applied Calculus

Lec. 3. Credit 3.

Prerequisite: ACT Math score of 25 or above and three years of high school mathematics, including algebra and geometry; or, special permission of the Mathematics Department; or, C or better in MATH 1130 or MATH 1710 or equivalent. A survey of limits, continuity, and the differential and integral calculus with applications in business, economics and the life sciences.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1845 - Technical Calculus

Lec. 3. Credit 3.

Prerequisite: ACT Math score of at least 25 and four years of high school mathematics, including algebra, geometry, trigonometry, and advanced or pre-calculus mathematics; or, special permission of the Mathematics Department; or, C or better in MATH 1730; or, C or better in MATH 1710 and 1720 or equivalent. A survey of differential and integral calculus of functions of a single variable including transcendental functions.

MATH 1910 - Calculus I

Lec. 4. Credit 4.

Prerequisite: ACT Math score of 27 or above and four years of high school mathematics, including algebra, geometry, trigonometry, and advanced or pre-calculus mathematics; or, special permission of the Mathematics Department; or, C or better in MATH 1730; or, C or better in MATH 1720 and MATH 1710; or equivalent. Limits, continuity, and derivatives of functions of one variable. Applications of differentiation and introduction to the definite integral.

◆ Meets Tennessee Technological University general education requirement (Mathematics).

MATH 1911 - Calculus I Honors Seminar

Lab. 1. Credit 0.

Corequisite: Concurrent enrollment in MATH 1910. An ACT score of 30 or higher is also recommended. Selected topics to add depth to the understanding of the material in MATH 1910. Honors students can receive honors credit for MATH 1910 by successfully completing both MATH 1910 and MATH 1911.

MATH 1920 - Calculus II

Lec. 4. Credit 4.

Prerequisite: C or better in MATH 1910 or equivalent AP credit for MATH 1910. Integration techniques, applications of the definite integral, polar coordinates, parametric equations, sequences, and series.

MATH 1921 - Calculus II Honors Seminar

Lab. 1. Credit 0.

Prerequisite: MATH 1911 or permission of the instructor. A grade of A in MATH 1910 is also recommended. Corequisite: Concurrent enrollment in MATH 1920. Selected topics to add depth to the understanding of the material in MATH 1920. Honors students can receive honors credit for MATH 1920 by successfully completing both MATH 1920 and MATH 1921.

MATH 2010 - Introduction to Linear Algebra

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 1910. Systems of linear equations, matrix algebra, inverses, matrix factorizations, determinants, vector spaces and dimension, rank, linear transformations, eigenvalues and eigenvectors, inner product, orthogonal projections.

MATH 2110 - Calculus III

Lec. 4. Credit 4.

Prerequisite: C or better in MATH 1920; or equivalent AP credit for MATH 1910 and MATH 1920. Analytic geometry and vectors, differential calculus of functions of several variables, multiple integration, and topics from vector calculus.

MATH 2120 - Differential Equations

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 1920. First order equations, linear equations of higher order, power series solutions (including Frobenius method), Laplace transforms, other topics. It is recommended but not required that students take MATH 2010 before taking MATH 2120.

MATH 2610 - Discrete Structures

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 1920. Topics to be chosen from algebra of sets and relations, functions, algebras, graphs and digraphs, monoids and machines, groups and subgroups, computer arithmetic, binary codes, logic, and languages.

MATH 3000 - Selected Topics in Mathematics

Lec. 1. Credit 1.

Prerequisite: C or better in MATH 1920 and consent of instructor. Lectures on and discussion of topics from upper level mathematics to be selected by the instructor in a setting with less structure than in a traditional class.

MATH 3070 - Statistical Methods I

Lec. 3. Credit 3.

Prerequisite: Recommended C or better in MATH 1130. Introduction to parametric statistical methods with some non-parametric alternatives, sampling, probability, Type I and Type II error, sample size estimation, confidence interval estimation, test of hypotheses using normal, Student's t, Snedecor's F, Chi-square and the binomial distributions, linear regression, analysis of variance, and data analysis utilizing statistical software.

MATH 3080 - Statistical Methods II

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 3070. Introduction to parametric statistical methods with some non-parametric alternatives, sampling, probability, Type I and Type II error, sample size estimation, confidence interval estimation, test of hypotheses using normal, Student's t, Snedecor's F, Chi-square and the binomial distributions, linear regression, analysis of variance, and data analysis utilizing statistical software.

MATH 3400 - Introduction to Concepts of Mathematics

Lec. 2. Rec. 2. Credit 3.

Prerequisite: C or better in MATH 1920. A rigorous treatment of elements of logic and set theory including propositional calculus (statements, connectives, conditionals, and negation), quantifiers, sets and operations on sets, mappings, equivalence relations, and mathematical induction. Students are expected to work in an abstract setting using precise definitions and formal proofs.

MATH 3430 - College Geometry

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 3400. A rigorous development of geometry from first concepts using the metric approach. Topics include constructions and hyperbolic geometry.

MATH 3470 - Introductory Probability and Statistics

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 1920. Probability, random variables, discrete and continuous distributions

and their simulation, elementary sampling theory, and estimation with an overall emphasis on simulation of random processes (Not allowed for mathematics majors after having taken MATH 4480 (5480).)

MATH 3670 - Theory and Applications of Random Signals

Lec. 2. Credit 2.

Introduction to randomization, unconditional and conditional probability, independence, and concepts of random variables. Distributions and density functions, moments and moment generating functions, univariate and multivariate random variables, random process concepts, spectral characteristics of random processes, and linear systems with random inputs.

MATH 3810 - Complex Variables

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2110. Complex numbers, calculus of complex variables, analytic functions, Cauchy's Theorem, series, the Residue Theorem, and applications.

MATH 3910 - Independent Study

Credit 1-3.

Prerequisite: Consent of instructor. Readings and study under the supervision of a qualified staff member.

MATH 4010 (5010) - Modern Algebra I

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2010 or equivalent, and C or better in MATH 3400. Groups and subgroups including cyclic, abelian, finite; permutation groups; group homomorphisms; cosets and Lagrange's Theorem; normal subgroups and factor groups.

MATH 4020 (5020) - Modern Algebra II

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 4010 (5010). Rings including integral domains, unique factorization domains and Euclidean domains, ideals and factor rings, ring homomorphisms, fields and their extensions, geometric constructions.

MATH 4050 (5050) - Number Theory

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 3400 or consent of instructor. Properties of integers, division algorithms, prime numbers, diophantine equations, and congruences.

MATH 4110 (5110) - Advanced Calculus I

Lec. 2. Rec. 2. Credit 3.

Prerequisite: C or better in MATH 3400 or consent of instructor. Rigorous treatment of functions of one and several variables, improper integrals, sequences, infinite series, uniform convergence, and applications. Students are expected to improve their ability to work in an abstract setting using precise definitions and formal proofs and to present their work in class.

MATH 4120 (5120) - Advanced Calculus II

Lec. 2. Rec. 2. Credit 3.

Prerequisite: C or better in MATH 4110 (5110). Rigorous treatment of functions of one and several variables, improper integrals, sequences, infinite series, uniform convergence, and applications. Students are expected to improve their ability to work in an abstract setting using precise definitions and formal proofs and to present their work in class.

MATH 4210 (5210) - Numerical Analysis I

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 1920. Iterative methods for nonlinear equations, computational error analysis, convergence of iterative techniques, interpolation, numerical differentiation and integration, approximate solutions of initial-value problems, boundary-value problems, and nonlinear systems, and direct and iterative methods for linear systems.

MATH 4220 (5220) - Numerical Analysis II

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2120 or consent of instructor. Iterative methods for nonlinear equations, computational error analysis, convergence of iterative techniques, interpolation, numerical differentiation and integration, approximate solutions of initial-value problems, boundary-value problems, and nonlinear systems, and direct and iterative methods for linear systems.

MATH 4250 (5250) - Advanced Ordinary Differential Equations I

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2110 and MATH 2120. Systems of ordinary differential equations, matrix methods, approximate solutions, stability theory, basic theory of nonlinear equations and differential systems, trajectories, phase space stability, and construction of liapunov functions.

MATH 4260 (5260) - Advanced Ordinary Differential Equations II

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 4250 (5250). Systems of ordinary differential equations, matrix methods, approximate solutions, stability theory, basic theory of nonlinear equations and differential systems, trajectories, phase space stability, and construction of liapunov functions.

MATH 4310 (5310) - Introduction to Topology I

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 3400. Topological spaces, continuity, connectedness, compactness, separation axioms, function spaces, and fundamental groups.

MATH 4320 (5320) - Introduction to Topology II

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 4310 (5310). Topological spaces, continuity, connectedness, compactness, separation axioms, function spaces, and fundamental groups.

MATH 4350 (5350) - Introductory Combinatorics

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 3400 or consent of instructor. Topics to be covered include permutations, combinations, multisets, partitions, recurrence relations, generating functions, and the principle of inclusion-exclusion.

MATH 4360 (5360) - Graph Theory

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 3400 or consent of instructor. Fundamental concepts of undirected and directed graphs, trees, connectivity, traversability, colorability, network flows, and matching theory.

MATH 4410 (5410) - Differential Geometry

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2110, MATH 2010 and MATH 3400. Geometry of curves and surfaces in three-dimensional space. Calculus on surfaces, curvature, and Riemannian geometry.

MATH 4470 (5470) - Probability and Statistics I

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2110. Mathematical foundations of elementary statistical methods,

application and theory, probability in discrete and continuous distributions, correlation and regression, sampling distributions, and significance tests.

MATH 4480 (5480) - Probability and Statistics II

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 4470 (5470).

Mathematical foundations of elementary statistical methods, application and theory, probability in discrete and continuous distributions, correlation and regression, sampling distributions, and significance tests.

MATH 4510 (5510) - Advanced Mathematics for Engineers

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2110 and MATH 2120.

Fourier series, Sturm-Liouville problems, orthogonal functions, Legendre polynomials, Bessel functions, separable partial differential equations (e.g. heat, wave and Laplace equations) and other topics.

MATH 4530 (5530) - Linear Algebra I

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2010 and MATH 3400.

A theoretical study of vector spaces, bases and dimension, subspaces, linear transformations, dual spaces, eigenvalues and eigenvectors, inner product spaces, spectral theory, duality, and quadratic and bilinear forms.

MATH 4540 (5540) - Linear Algebra II

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 4530 (5530). A theoretical study of vector spaces, bases and dimension, subspaces, linear transformations, dual spaces, eigenvalues and eigenvectors, inner product spaces, spectral theory, duality, and quadratic and bilinear forms.

MATH 4610 (5610) - History of Mathematics I

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 3400. The development of mathematics and its relation to the development of civilization prior to the beginnings of calculus.

MATH 4620 (5620) - History of Mathematics II

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 3400. History of mathematics from the beginnings of calculus through the modern times.

MATH 4710 (5710) - Vector Analysis

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2110. The algebra and the differential and integral calculus of vectors and applications to geometry and mechanics.

MATH 4750 (5750) - Category Theory of Sets

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 3400 (or consent of instructor for MATH 5750). Abstract sets and mappings, categories, sums, universal property, monomorphisms and parts, finite inverse limits, colimits, epimorphisms, the Axiom of Choice, mapping sets and exponentials, covariant and contravariant functoriality of function spaces, Cantor's diagonal argument, powers sets, variable sets, models of additional variation, and selected applications.

MATH 4850 (5850) - Computational Algebraic Geometry I

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 2010 and C or better in MATH 3400 or equivalent (or consent of instructor for MATH 5850). Additional recommended prerequisite: MATH 4010 (5010) or any other 4000/5000-level mathematics course in which proofs are required. Affine varieties and polynomial ideals, Groebner bases, elimination theory, Hilbert's Nullstellensatz, Zariski closure, and decomposition into irreducible varieties.

MATH 4860 (5860) - Computational Algebraic Geometry II

Lec. 3. Credit 3.

Prerequisite: C or better in MATH 4850 (5850). Polynomial and rational functions on a variety, projective varieties, the dimension of a variety, selected applications in robotics, automatic theorem proving, and invariant theory of finite groups.

MATH 4910 (5910) - Directed Readings

Credit 1-3.

Prerequisite: Consent of instructor. These courses provide an opportunity for individual reading and study under the supervision of a qualified staff member.

MATH 4920 (5920) - Directed Readings

Credit 1-3.

Prerequisite: Consent of instructor. These courses provide an opportunity for individual reading and study under the supervision of a qualified staff member.

MATH 4950 (5950) - Topics in Mathematics

Lec. 3. Credit 3.

Prerequisite: Consent of instructor. A formal course in any area where there is no other course offering. May be taken more than once provided that the topic is different.

MATH 4970 - Senior Seminar

Lec. 1. Credit 1.

Prerequisite: Senior Standing. Preparation of papers at an advanced level in mathematics to be presented both in writing and orally.

MATH 4991 - Mathematical Research

Credit 1, 2, 3.

Prerequisite: C or better in MATH 1920 and consent of instructor. This course introduces students to the process of performing research. By reading papers the students will learn how to define open and significant problems, set up a research plan and, if applicable, define relevant experiments. Students will be required to give presentations on either their own or other people's research. These courses can be taken for credit more than once.

MATH 4992 - Mathematical Research

Credit 1, 2, 3.

Prerequisite: C or better in MATH 1920 and consent of instructor. This course introduces students to the process of performing research. By reading papers the students will learn how to define open and significant problems, set up a research plan and, if applicable, define relevant experiments. Students will be required to give presentations on either their own or other people's research. These courses can be taken for credit more than once.

MATH 4993 - Mathematical Research

Credit 1, 2, 3.

Prerequisite: C or better in MATH 1920 and consent of instructor. This course introduces students to the process of performing research. By reading papers the students will learn how to define open and significant problems, set up a research plan and, if applicable, define relevant experiments. Students will be required to give presentations on either their own or other people's research. These courses can be taken for credit more than once.

Mechanical Engineering

ME 2330 - Dynamics

Lec. 3. Credit 3.

Prerequisite: C or better in CEE 2110; PHYS 2110. Kinematics; relative motion; kinetics, applications of Newton's Laws, work-energy principle, impulse-momentum principle, vibrations.

(ENGR 2120, TTP Course)

ME 2910 - Professionalism and Ethics

Lec. 1. Credit 1.

Prerequisite: Sophomore Standing. Professional, social and ethical issues in engineering practice; oral and written technical communication.

ME 3001 - Mechanical Engineering Analysis

Lec. 3. Credit 3.

Prerequisite: ENGR 1120; C or better in MATH 2010; C or better in MATH 2120. Analytical and numerical techniques are developed for problems arising in mechanical engineering. Analytical methods include applications of Laplace transforms, Fourier series and separation of variables. Numerical methods include root finding, quadrature rules, and solutions to ordinary and partial differential equations. Use of modern numerical computing tools for problem solving.

ME 3010 - Materials and Processes in Manufacturing

Lec. 3. Credit 3.

Prerequisite: ME 2910, CEE 2110 C or better, CHEM 1010 or CHEM 1110 (ME 2910 and ME 3010 may be taken concurrently). Processing/microstructure/property interrelations; heat treatment of steels and alloys; overview of manufacturing processes; interrelations among materials, design and manufacturing; and introduction to material selection.

ME 3023 - Measurements in Mechanical Systems

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ECE 2010, PHYS 2120, PHYS 2121 (or ECE 2011 for ME Mechatronics Concentration) and CEE 3110 (CEE 3110 may be taken concurrently). Principles of measurement and calibration; basic instrumentation and measurement techniques in mechanical systems.

ME 3050 - Dynamic Modeling and Controls

Lec. 3. Credit 3.

Prerequisite: ME 2330, ME 3023 and ME 3001. Corequisite: ME 3060. Modeling and simulation of lumped parameter systems, mechanical, electrical, thermal, fluid, and/or mixed, stability, time and frequency response; vibration applications; control algorithms.

ME 3060 - Dynamic Modeling and Controls Lab

Lab. 2. Credit 1.

Corequisite: ME 3050. Experiments and simulations of lumped parameter mechanical systems; time and frequency response; vibration applications; control algorithms.

ME 3110 - Physical Metallurgy and Heat Treatment

Lec. 3. Credit 3.

Prerequisite: Junior Standing. Structure and properties of ferrous and nonferrous metals and alloys; equilibrium diagrams; heat treatment methods and effects; and behavior in service. Not for ME majors.

ME 3210 - Thermodynamics I

Lec. 3. Credit 3.

Prerequisite: CHEM 1110; C or better in MATH 2110. Concepts, models and laws; energy and the first law; properties and state; energy analysis of thermodynamics systems; entropy and the second law; and conventional power and refrigeration cycles.

ME 3220 - Thermodynamics II

Lec. 3. Credit 3.

Prerequisite: ME 3210. Gas power and refrigeration cycles, exergy analysis; real and ideal gas mixtures; combustion and chemical equilibrium.

ME 3610 - Dynamics of Machinery

Lec. 3. Credit 3.

Prerequisite: ME 2330. Motion converters and design process. Mobility equations; solutions of vector equations; kinematic position, velocity and acceleration analysis of mechanisms; kineto-static load analysis of machines; introductory synthesis of linkages; design of cam-follower mechanisms; gear tooth geometry; analysis and synthesis of gear trains and planetary gear differentials; and computer aided studies.

ME 3710 - Heat Transfer

Lec. 3. Credit 3.

Prerequisite: ME 3210; C or better in MATH 2120. ME 3210 may be taken concurrently. Single and multidimensional steady-state and transient heat conduction; role of convection for internal and external forced flows and in buoyancy-driven flow; and thermal radiation processes and properties.

ME 3720 - Fluid Mechanics

Lec. 3. Credit 3.

Prerequisite: ME 2330. Fundamentals of fluid flow; fluid statics; systems and control volumes; continuity, momentum and energy equations; dynamic similitude; one-dimensional open channel flow; and compressible flow.

ME 4010 - Machine Design

Lec. 3. Credit 3.

Prerequisite: CEE 3110, ME 2330 and ME 3010. Loads analysis; design of machine parts for stiffness and rigidity; design of machine parts for strength; design of machine parts for fatigue life; introduction to fastening and joining.

ME 4020 (5020) - Applied Machine Design

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ME 3610 and ME 4010. Design for strength and rigidity under dynamic loads; shaft design; design of joints (threaded fasteners, welds, springs, keys, etc.); design of gear trains; lubrication and bearing design; finite element analysis; and optimization, and statistical consideration in design.

ME 4060 (5060) - Machine Vibrations

Lec. 3. Credit 3.

Prerequisite: ME 3050. Linear vibration of machine elements, lumped parameter multidegree of freedom and continuous system solutions; computer-aided solutions of linear and nonlinear systems; and simple laboratory vibration measurement and comparative vibration analysis.

ME 4120 (5120) - Intermediate Dynamics

Lec. 3. Credit 3.

Prerequisite: ME 2330. Rigid-body kinematics, plane and three-dimensional rigid-body kinetics, Lagrangian mechanics, orbital motions, and variable mass rockets.

ME 4140 (5140) - Introduction to Robotics and Intelligent Machines Engineering

Lec. 3. Credit 3.

Prerequisite: ME 3050 and ME 3060; or ECE 3210 and ECE 3260. The combination of ME 3050 and ME 3060 or the combination of ECE 3210 and ECE 3260 may be taken concurrently. Robotic concepts and subsystems; mechanics of robots; sensors and intelligence; actuators; and trajectory planning and control.

ME 4160 (5160) - Experimental Stress Analysis

Cross-listing: CEE 4160 (5160)

Lec. 2. Lab. 2. Credit 3.

Prerequisite: CEE 3110 and MATH 2120. Introduction to theory of elasticity; photoelasticity; theory and application of strain gages and rosettes; brittle coatings; holographic interferometry; and moiré analysis.

ME 4180 (5180) - Finite Element Methods in Mechanical Design

Lec. 3. Credit 3.

Prerequisite: CEE 3110. Fundamental concepts; displacement-based finite element formulation using energy methods; one-dimensional and two-dimensional finite elements; modeling considerations and convergence; programming and an introduction to a commercial program.

ME 4190 (5190) - Advanced Mechanics of Materials

Cross-listing: CEE 4190 (5190)

Lec. 3. Credit 3.

Prerequisite: CEE 3110, MATH 2120 or consent of instructor. Advanced topics; fracture mechanics, elastic support, noncircular shafts, curved beams, thick-walled cylinders, introduction to plates, and thin shells of revolution.

ME 4210 - Refrigeration and Air Conditioning

Lec. 3. Credit 3.

Prerequisite: ME 3220, ME 3710 and ME 3720.

Refrigeration systems and HVAC design concepts; air-conditioning systems, principles of psychrometrics, human comfort, and principles for building load calculations and annual energy use simulations.

ME 4220 - Air Conditioning Design

Lec. 3. Credit 3.

Prerequisite: ME 3220, ME 3710 and ME 3720. Design of heating, cooling and ventilation systems for buildings. Duct system design, pipe system layout, and equipment selection.

ME 4260 (5260) - Energy Conversion and Conservation

Lec. 3. Credit 3.

Prerequisite: ME 3220, ME 3710 or equivalent. An in-depth study of industrial steam, pumping and compressed air systems in terms of how to reduce system energy consumption.

ME 4310 (5310) - Gas Dynamics

Lec. 3. Credit 3.

Prerequisite: ME 3220 and ME 3720. Balance laws,

shock waves, Prandtl/Meyer expansion, flow through ducts and nozzels, unsteady wave motion, linearized supersonic thin airfoil theory.

ME 4370 (5370) - Mechatronics and Intelligent Machines Engineering

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ECE 2010, PHYS 2121, ME 3050 and ME 3060. Mechatronics; number systems; microcontroller technology and architecture of 8-bit microcontrollers (e.g. Motorola MC68H110), assembly language programming, A/D and D/A conversion, parallel I/O; programmable timer operation, interfacing sensors and actuators, applications, and team project on design and implementation of a mechatronic system.

ME 4410 - Senior Design Project I

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ME 3001, ME 3023, ME 3050, ME 3060, ME 3220, ME 3610, ME 3710, ME 3720, ME 4010, and ME 2910. Principles of engineering design with emphasis on contemporary industrial design processes and engineering economics with applications in product design. Development phase for capstone team design project in mechanical engineering: preliminary design, supporting analyses and drawings with bill of materials. ME 3050, ME 3060, and ME 4910 may all be taken concurrently.

ME 4420 - Senior Design Project II

Lec. 1. Lab. 4. Credit 3.

Prerequisite: ME 4410; ME 3050; ME 3060; ME 2910; ME 4020 (5020) or ME 4720 (5720). Continuation of ME 4410. Prototyping and testing phase for capstone team design project. Final design reporting (written and oral). ME 4020 (5020) or ME 4720 may be taken concurrently.

ME 4450 (5450) - Design for Manufacturability

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ME 3010 and CEE 3110. Material and manufacturing process constraints on design shape, size and quantity; plastic and fibrous composite parts manufacturing; rapid prototyping; design for X; dimensions and tolerances.

ME 4460 (5460) - Mechanical Properties of Materials

Lec. 3. Credit 3.

Prerequisite: CEE 3110, ME 3010 or consent of instructor. Elastic and anelastic properties, dislocations, slip, plastic deformation, fracture mechanics, creep,

fatigue and fatigue crack propagation, materials testing, and introduction to failure analysis.

ME 4470 (5470) - Interdisciplinary Studies in Ceramic Materials Processing

Cross-listing: CHE 4470 (5470)

Lec. 2. Lab. 2. Credit 3.

Prerequisite: CHEM 1120, MATH 2120 and PHYS 2110.

Selected materials synthesis for metals, ceramics and their composites, application of fracture mechanics and failure models, mechanical, chemical, and morphological characterization theory and practice, and materials design.

ME 4480 (5480) - Microstructural Analysis

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ME 4460 (5460). Techniques and applications of microstructural analysis; optical microscopy; metallography; electron microscopy; and fractography and failure analysis.

ME 4490 (5490) - Properties and Selection of Engineering Materials

Lec. 3. Credit 3.

Prerequisite: ME 3010. An intermediate course in materials engineering emphasizing the interrelations among material properties, microstructure, and optimum material selection for design applications.

ME 4510 (5510) - Aerodynamics

Lec. 3. Credit 3.

Prerequisite: ME 3720. Atmospheric fluid statics, ideal fluid dynamics, potential flow, lift and drag estimation, powered flight, glides, takeoffs, landings.

ME 4610 - Steam Power Plants

Lec. 3. Credit 3.

Prerequisite: ME 3220, ME 3710 and ME 3720. Energy sources, fuels, firing methods, boilers, turbine characteristics, cooling water and cooling towers, dust collection, new developments in energy generation, plant trip.

ME 4620 (5620) - Turbomachinery

Lec. 3. Credit 3.

Prerequisite: ME 3720. Presents a generalized description and unified theory pertaining to the classification, operation, selection and basic design of rotating turbomachines--pumps, fans, compressors, and turbines; topics of current interest.

ME 4630 - Internal Combustion Engines

Lec. 3. Credit 3.

Prerequisite: ME 3220, ME 3710 and ME 3720. Ideal fuel/air cycles, heat loss, friction, combustion and detonation, carburetion and fuel injection; air flow, normal overall performance, and extreme performance.

ME 4640 (5640) - Dynamics of Machinery II

Lec. 3. Credit 3.

Prerequisite: ME 3610. Graphical and analytical synthesis of linkage mechanisms for function generation, motion generation and path generation. Kinetostatic analysis of linkage mechanisms; engine dynamics and balancing; and rigid-body dynamics, time response analysis.

ME 4720 (5720) - Thermal Design

Lec. 3. Credit 3.

Prerequisite: ME 3220, ME 3710 and ME 3720. Introduction to the design of thermofluid devices and systems; general design methodology, modeling, simulation, and optimization; and heat exchangers and prime movers in systems.

ME 4730 (5730) - Numerical Heat Transfer

Lec. 3. Credit 3.

Prerequisite: ECE 2010, PHYS 2121 (or ECE 2011 for ME Mechatronics Concentration); ME 3050 and ME 3060. Fundamentals of numerical methods; steady and unsteady one-dimensional heat conduction; steady and unsteady multi-dimensional heat conduction; fully-developed duct flows; one- and two-dimensional convection heat transfer, and flow through porous media.

ME 4751 - Energy Systems Lab

Lec. 1. Lab. 2. Credit 2.

Prerequisite: ME 3023, ME 3710 and ME 3720. Basic instrumentation and principles of measuring pressure, temperature, fluid velocity, and fluid flow rate; demonstrations, measurements, and evaluations of heat transfer and fluid flow processes.

ME 4810 (5810) - Automatic Controls

Lec. 3. Credit 3.

Prerequisite: ME 3050. ME 3050 may be taken concurrently. Mathematical modeling of physical systems, control algorithms, stability, transient response, and frequency response.

ME 4900 - Special Topics

Credit 3.

Prerequisite: Junior or Senior Standing. Special topics of current interest in mechanical engineering that are not covered in existing courses. Because of the impossibility of duplicating the conditions for a special topic, this course may not be repeated for the improvement of a grade.

ME 4930 (5930) - Noise Control

Cross-listing: CEE 4930 (5930)

Lec. 2. Lab. 2. Credit 3.

Prerequisite: MATH 2120 and PHYS 2110. Identification and description of noise sources and noise radiation, methods of noise measurement and criteria for noise levels, principles and techniques of noise control.

ME 4990 - Undergraduate Research

Credit 3.

Prerequisite: Approval of course instructor and department chairman. Investigation of current research and development interests. May be taken by a single student or by a small group of students if the investigation requires. Because of the impossibility of duplicating the conditions for the investigation, this course may not be repeated for the improvement of a grade.

Military Science, Basic

MS 1000 - Basic Physical Conditioning

Lab. 3. Credit 1.

Physical Fitness Program to develop stamina, flexibility, coordination, speed, and upper body strength, and to enhance lifestyle.

MS 1001 - Basic Physical Conditioning

Lab. 3. Credit 1.

Physical Fitness Program to develop stamina, flexibility, coordination, speed, and upper body strength, and to enhance lifestyle.

MS 1010 - Fundamental Concepts

Lec. 1. Lab. 1. Credit 2.

Fundamental components of service as an officer. Addresses "life skills," including fitness, communications theory, and interpersonal relationships.

MS 1020 - Basic Leadership

Lec. 1. Lab. 2. Credit 2.

Builds upon previous semester and introduces problem-solving, critical thinking, leadership theory, followership,

group interaction, goal setting, and feedback mechanisms.

MS 2000 - Basic Physical Conditioning

Lab. 3. Credit 1.

Army PT Program to develop stamina, flexibility, coordination, speed, upper body strength, self-discipline, and health, and to enhance lifestyle.

MS 2001 - Basic Physical Conditioning

Lab. 3. Credit 1.

Army PT Program to develop stamina, flexibility, coordination, speed, upper body strength, self-discipline, and health, and to enhance lifestyle.

MS 2010 - Advanced Leadership

Lec. 2. Lab. 2. Credit 2.

Prerequisite: MS 1010 and MS 1020 or permission of Professor of Military Science. Principal leadership instruction of the Basic Course. Building on the fundamentals introduced in the MS I year, this class delves into several aspects of communication and leadership theory.

MS 2020 - Tactics and Officership

Lec. 2. Lab. 2. Credit 2.

Prerequisite: MS 1010, MS 1020, and MS 2010 or permission of Professor of Military Science. An extensive examination of the unique purposes, roles and obligations of commissioned officers. Includes a detailed look at the origin and practical application of the Army's institutional values.

MS 2800 - Basic Course; Individual 3

Credit 3.

Five weeks of training during the summer conducted at an Army post consisting of leadership, small unit tactics, weapons, drill and a writing assignment due two weeks after the five weeks of training.

Military Science, Advanced

MS 3000 - Advanced Physical Conditioning

Lab. 3. Credit 1.

Army Physical Fitness Program to develop stamina, flexibility, coordination, speed, upper body strength, self-discipline, and health, and to enhance lifestyle.

MS 3001 - Advanced Physical Conditioning

Lab. 3. Credit 1.

Army Physical Fitness Program to develop stamina,

flexibility, coordination, speed, upper body strength, self-discipline, and health, and to enhance lifestyle.

MS 3010 - Small Unit Leadership

Lec. 3. Lab. 2. Credit 3.
Leadership and development through study and practical application of principles of social sciences and management and military tactics.

MS 3020 - Small Unit Operations

Lec. 3. Lab. 2. Credit 3.
Practical application of leadership skills. Techniques for planning, organizing, and decision-making in military operations.

MS 3040 - Advanced Course; Individual 3

Credit 3.
Prerequisite: MS 3010 and MS 3020. Five weeks of training conducted at an Army Post evaluating practical application of classroom skills and developing leadership potential.

MS 3222 - Introduction to Officer Professional Development; Individual

Lec. 3. Credit 3.
Course may be repeated for three credits once with new individual requirements assigned by the Military Science Department Chairperson. The course is designed to foster and instill necessary life-long learning necessary from the Military professional.

MS 3600 - US Military History

Lec. 3. Credit 3.
Prerequisite: Enrollment in ROTC. This course covers US Military History from 1607 to present day. The purpose of this course is to provide the Reserve Officer Training Corps (ROTC) Cadets the knowledge and understanding of the relationship between the military and American Society and the value of military history to the professional officer. Completion of this block of instruction is a prerequisite for commissioning as a Lieutenant in the United States Army.

MS 4000 - Advanced Physical Conditioning

Lab. 3. Credit 1.
Application of planning/conducting Army Physical Fitness Program.

MS 4001 - Advanced Physical Conditioning

Lab. 3. Credit 1.

Application of planning/conducting Army Physical Fitness Program.

MS 4002 - Advanced Physical Conditioning

Lab. 3. Credit 1.
Prerequisite: Consent of instructor. Army Physical Fitness Program.

MS 4003 - Advanced Physical Conditioning

Lab. 3. Credit 1.
Prerequisite: Consent of instructor. Army Physical Fitness Program.

MS 4010 - Leadership, Management & Ethics

Lec. 3. Lab. 2. Credit 3.
Techniques of military leadership, communications, ethics, and decision-making process. Includes research and writing requirements.

MS 4020 - Transition to Lieutenant

Lec. 3. Lab. 2. Credit 3.
Advanced techniques in leadership, planning and decision making. Includes research, writing requirements, and battlefield study trip.

Music, Class Instruction

MUS 1011 - Beginning Class Piano for Music Majors I

Lec. 1. Lab. 1. Credit 1.
Designed to give a functional knowledge of the piano.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1012 - Beginning Class Piano for Music Majors II

Lec. 1. Lab. 1. Credit 1.
Designed to give a functional knowledge of the piano.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1013 - Recital Class

Credit 0.
All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1021 - Class Voice Techniques I

Lec. 1. Lab. 1. Credit 1.

Students will learn rudiments of teaching posture, breathing, tone production, song interpretation, and stage deportment in order to effectively work with students in a choir.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1022 - Class Voice Techniques II

Lec. 1. Lab. 1. Credit 1.

Students will learn rudiments of teaching posture, breathing, tone production, song interpretation and stage deportment in order to effectively work with students in a choir.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1023 - Intermediate Class Piano for Music Majors III

Lec. 1. Lab. 1. Credit 1.

Prerequisite: MUS 1012 or previous piano experience. Designed to prepare music students with previous keyboard experience for the piano proficiency examination.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1024 - Intermediate Class Piano for Music Majors IV

Lec. 1. Lab. 1. Credit 1.

Prerequisite: MUS 1023 or previous piano experience. Designed to prepare music students with previous keyboard experience for the piano proficiency examination.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1027 - Keyboard Skills for Music Therapy I

Lab. 2. Credit 1.

Prerequisite: Music Therapy major; passed ALL portions of piano proficiency. Keyboard skills and repertoire necessary for the practice of music therapy, including: accompaniment, harmonization, improvisation,

performance of selected repertoire.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1028 - Keyboard Skills for Music Therapy II

Lab. 2. Credit 1.

Prerequisite: Music Therapy major; passed ALL portions of piano proficiency; MUS 1027 or consent of instructor. Continuation of MUS 1027. Keyboard skills and repertoire necessary for the practice of music therapy, including: accompaniment, harmonization, improvisation, performance of selected repertoire.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1029 - Oratorio Class

Lab. 2. Credit 1.

A survey of the major representative oratorio literature, which features sections and arias for the solo voice and ensembles. Periods of study will include the Baroque to the Twentieth Century.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1031 - String Techniques I

Lec. and Lab. 2. Credit 1.

Each student will learn rudiments of four string instruments: Violin, Viola, Cello and Double Bass. They will also learn how to teach each instrument in a class setting.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1032 - String Techniques II

Lec. and Lab. 2. Credit 1.

Each student will learn rudiments of four string instruments: Violin, Viola, Cello and Double Bass. They will also learn how to teach each instrument in a class setting.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1035 - Beginning Class Guitar

Lab. 2. Credit 1.

Accompanying group singing. Emphasis on chords and strumming techniques.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1036 - Intermediate Class Guitar

Lab. 2. Credit 1.

Prerequisite: MUS 1035 or consent of instructor.

Additional skills and techniques for students already possessing a basic command of the instrument.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1041 - Woodwind Techniques I

Lec. and Lab. 2. Credit 1.

Each student will learn introductory through advanced teaching skills and rudiments of the five woodwind instruments: Flute, Oboe, Clarinet, Saxophone, Bassoon.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1042 - Woodwind Techniques II

Lec. and Lab. 2. Credit 1.

Each student will learn introductory through advanced teaching skills and rudiments of the five woodwind instruments: Flute, Oboe, Clarinet, Saxophone, Bassoon.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1051 - Brass Techniques I

Lec. and Lab. 2. Credit 1.

Students in this course will learn introductory through advanced pedagogical skills useful to teaching brass instruments in primary and secondary school settings.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1052 - Brass Techniques II

Lec. and Lab. 2. Credit 1.

Students in this course will learn introductory through advanced pedagogical skills useful to teaching brass instruments in primary and secondary school settings.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1071 - Percussion Techniques I

Lec. and Lab. 2. Credit 1.

Students in this course will learn introductory through advanced pedagogical skills useful to teaching percussion instruments in primary and secondary school settings.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1072 - Percussion Techniques II

Lec. and Lab. 2. Credit 1.

Students in this course will learn introductory through advanced pedagogical skills useful to teaching percussion instruments in primary and secondary school settings.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1073 - Percussion Techniques

Lec. and Lab. 2. Credit 1.

Rhythm and percussion instruments for Music Therapy majors.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1074 - Music to Meet Exceptional Education Needs

Lec. and Lab. 2. Credit 1.

Music leadership skills for the special education setting. Developing music activities to meet the abilities and needs of students with disabilities.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1081 - Improvisation I

Lab. 2. Credit 1.

Prerequisite: MUS 1140 and MUS 1150 with a grade of C or better. Development of improvisation skills in varied musical styles. Emphasis on performance and aural perception.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1082 - Improvisation II

Lab. 2. Credit 1.

Prerequisite: MUS 1081 with a grade of C or better. Development of improvisation skills in varied musical styles. Emphasis on performance and aural perception.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1195 - Student Recital

Credit 1.

Prerequisite: Consent of studio instructor. Corequisite: Enrollment in private instruction in pertinent studio. Open to any non-curricular solo recital performance. May be repeated for credit. Recital fee applies.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1210 - Diction for Singers I

Lab. 2. Credit 1.

Language diction for singers, including Latin and Italian, stressing similarities and differences of sung language.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1220 - Diction for Singers II

Lab. 2. Credit 1.

Prerequisite: MUS 1210. Language diction for singers, including English, German and French, stressing similarities and differences of sung language.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3530 - Music Applications

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Course content is directed toward the music education needs of prospective elementary classroom teachers.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3540 - Music Applications

Lec. 1. Credit 1.

This course is designed for pre-service elementary school classroom teachers to experience music through singing, playing instruments, moving, reading and writing. They will research, learn and collect a repertoire of music activities for incorporating into and enhancing learning in the general curriculum. Candidates will also reflect upon the role of music in the lives and education of children. Individual, small group and large group activities and assignments will be strategies used in this course.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

Music, Music History and Literature

MUS 1030 - Music Appreciation

Lec. 3. Credit 3.

Survey of various styles and forms of music with recordings used for class listening. All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

MUS 1034 - American Popular Music

Lec. 3. Credit 3.

Survey of various forms and styles of American popular music from its origins in African-American blues through rock and roll to the present.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 2030 - World Music

Lec. 3. Credit 3.

Introduction to folk/traditional, classical and pop musical

styles from selected areas in Africa, Asia, Europe, and the Americas.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3010 - Music History and Literature I

Lec. 3. Credit 3.

Prerequisite: MUS 1030, MUS 1140, and MUS 1150 with a grade of C or better. Western music of the Ancient, Medieval, Renaissance, Baroque and Classical periods. Materials basic to research on musical topics.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3020 - Music History and Literature II

Lec. 3. Credit 3.

Prerequisite: MUS 1030, MUS 1140, MUS 1150 and MUS 3010. Western music of the Romantic period and 20th century. Expansion of research experience on a variety of musical topics.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3710 - Pedagogy and Literature I

Lec. 2. Credit 2.

Techniques, materials, and methodologies used in the application of learning theory to studio instruction.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3720 - Pedagogy and Literature II

Lec. 2. Credit 2.

Techniques, materials, and literature for use in the pedagogy of the studio instrument and its generic family in preparation for a studio teaching career.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3800 - Vocal Pedagogy and Literature I

Lec. 2. Credit 2.

A study in methodologies, principles, and procedures developed for systematized learning in the art of singing.

Directed information for the singer, studio teacher, and choral director. Vocal acoustics, breathing, and laryngeal functions are studied.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3810 - Vocal Pedagogy and Literature II

Lec. 2. Credit 2.

Prerequisite: MUS 3800 with a grade of C or better. Teaching strategies and philosophies, diagnosis of vocal faults, stage deportment, vocal repertoire, and ethics for teachers are studied. Supervised lab experience in teaching by participating students.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 4110 (5110) - History and Literature of Jazz

Lec. 2. Credit 2.

Jazz traced from its multi-ethnic origin through to its present form and its influences on American culture.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 4120 (5120) - Contemporary Music

Lec. 2. Credit 2.

Prerequisite: MUS 3010 or MUS 3020 and MUS 2110-MUS 2120 with a grade of C or better. The culture of musical pluralism since World War II, including art music, jazz, rock, and folk.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

Music, Music Technology

MUS 4250 - Recording Techniques

Lec. 2. Lab. 1. Credit 2.

Prerequisite: MUS 1024, MUS 2130, MUS 2140 with a grade of C or better and Harmony/AT Exam. An introduction to sound recording, including analog and digital formats. Emphasis on applications appropriate to performing musicians.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 4510 - Computer Applications in Music

Lec. 1. Lab. 2. Credit 2.

Prerequisite: MUS 1120 and MUS 1130 with a grade of C or better. An introduction to computer applications in music performance, composition, teaching, and related fields.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

Music, Music Theory

MUS 1110 - Music Fundamentals

Lec. 3. Credit 3.

A basic course for general students, including the study of music construction, notation, literature and techniques for listening.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1120 - Harmony I

Lec. 3. Credit 3.

Prerequisite: Passing score on Entrance Exam. Scales, intervals, triads, rhythms, chord functions, part-writing, inversions, cadences, non-harmonic tones, and musical analysis.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1130 - Aural Techniques I

Lab. 2. Credit 1.

Corequisite: MUS 1120. Aural perception, singing, and keyboard performance of materials in MUS 1120.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1140 - Harmony II

Lec. 3. Credit 3.

Prerequisite: MUS 1120. Corequisite: MUS 1150. Study of diatonic harmony through part-writing, analysis and stylistic composition.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1150 - Aural Techniques II

Lab. 2. Credit 1.

Prerequisite: MUS 1130 with a grade of C or better. Aural perception, singing, and keyboard performance of materials in MUS 1140.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 2110 - Harmony III

Lec. 1. Lab. 2. Credit 2.

Prerequisite: MUS 1140 with a grade of C or better. Chromaticism, altered chords, secondary functions, augmented sixth chords, and musical analysis.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 2120 - Aural Techniques III

Lab. 2. Credit 1.

Prerequisite: MUS 1150. Aural perception, singing, and keyboard performance of materials in MUS 2110.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 2130 - Harmony IV

Lec. 1. Lab. 2. Credit 2.

Prerequisite: MUS 2110 with a grade of C or better. Advanced modulation and part-writing procedures. Survey of 20th Century harmonic techniques, original composition, and musical analysis.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 2140 - Aural Techniques IV

Lab. 2. Credit 1.

Prerequisite: MUS 2120 with a grade of C or better. Corequisite: MUS 2130. Aural perception, singing, and keyboard performance of materials in MUS 2130.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3130 - Form and Analysis

Lec. 2. Credit 2.

Prerequisite: MUS 1024, MUS 2130 with a grade of C or better and Harmony/AT Exam. A comprehensive study of the structure of music from all historic periods.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3140 - Counterpoint

Lec. 3. Credit 3.

Prerequisite: MUS 3130 with a grade of C or better. The study of 18th century/counterpoint: analysis, composition. The relationship between Baroque and 20th century contrapuntal techniques.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3210 - Instrumentation

Lec. 2. Credit 2.

Prerequisite: MUS 1024, MUS 2130, MUS 2140, MUS 4510, MUED 3620 with a grade of C or better and Harmony/AT Exam. Ranges, timbre mixtures, and transpositions for all music media, as related to standard scoring techniques. Ensemble scores are constructed.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3220 - Jazz Composition and Arranging I

Lec. 2. Credit 2.

Prerequisite: MUS 1024, MUS 2130, MUS 2140 with a grade of C or better and Harmony/AT Exam. Original compositions and arrangements in jazz styles for large and small ensembles. Student work will be performed and recorded.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3230 - Jazz Composition and Arranging II

Lec. 2. Credit 2.

Prerequisite: MUS 3220 with a grade of C or better. Original compositions and arrangements in jazz styles for large and small ensembles. Student work will be performed and recorded.

All music majors must achieve a grade of "C" in each

music course. If a lower grade is earned, the student must repeat the course.

MUS 3240 - Choral Literature

Lec. 2. Credit 2.

Prerequisite: MUS 1024, MUS 2130, MUS 2140 with a grade of C or better and Harmony/AT Exam. The study of the diverse types of vocal combinations with attention to age groups, ensemble size and styles. Particular attention to text setting and the voice with various instrumental possibilities.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 4710 (5710) - Supervised Teaching Experience I

Ind. Credit 2.

Activities designed to offer supervised, practical experience in private studio teaching: planning and presenting lessons, and directing individual study.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 4720 (5720) - Supervised Teaching Experience II

Ind. Credit 2.

Continuation of MUS 4710 (5710).

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

Music, Organizations

MUS 1001 - Horn Choir

Lab. 2. Credit 0-1.

Preparation of chamber music scores for instruments of the horn family.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1002 - Trombone Choir

Lab. 2. Credit 0-1.

Preparation of chamber music scores for instruments of the trombone family.

All music majors must achieve a grade of "C" in each

music course. If a lower grade is earned, the student must repeat the course.

MUS 1003 - Flute Choir

Lab. 2. Credit 0-1.

Preparation of chamber music scores for instruments of the flute family.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1004 - Clarinet Choir

Lab. 2. Credit 0-1.

Preparation for concert performance of chamber music scores for instruments of the clarinet family.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1005 - Chamber Music

Lab. 2. Credit 0-1.

Preparation for concert performance of vocal and instrumental chamber music scores.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1007 - Tuba Ensemble

Lab. 3. Credit 0-1.

Preparation for concert performance of chamber music scores for instruments of tuba family.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1009 - Trumpet Choir

Lab. 2. Credit 0-1.

Preparation for concert performance of chamber music scores for instruments of the trumpet family.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1015 - Percussion Ensemble

Lab. 2. Credit 0-1.

Preparation for concert performance of music written or

transcribed for percussion ensemble.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1016 - Accompanying

Lab. 2. Credit 1.

Instruction and performance in accompanying for piano majors.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1017 - Bassoon Choir

Lab. 2. Credit 0-1.

Preparation of chamber music scores for instruments of the bassoon family.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1018 - Saxophone Choir

Lab. 2. Credit 0-1.

Preparation of chamber music scores for instruments of the saxophone family.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1025 - Wind Ensemble

Lab. 2. Credit 0-1.

Prerequisite: Successful audition. A select ensemble of wind and percussion instrumentalists.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1026 - Varsity Pep Band

Lab. 2. Credit 0-1.

Public performance for varsity basketball games.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1033 - Marching Band

Fall. Lab. 4. Credit 0-1.

Preparation and performance for all home football games and other campus and community events.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1040 - Symphony Band

Lab. 5. Credit 0-1.

Prerequisite: Successful audition. A wind band comprised of 60-80 instrumentalists.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1045 - Concert Band

Lab. 4. Credit 0-1.

Prerequisite: Successful audition. A wind and percussion band; open to all students.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1050 - Women's Chorus

Lab. 2. Credit 0-1.

Prerequisite: Successful audition. A choral performance ensemble for female voices, open to all University students.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1054 - Men's Chorus

Lab. 2. Credit 0-1.

Prerequisite: Successful audition. A choral performance ensemble for male voices, open to all University students.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1060 - Chorale

Lab. 5. Credit 0-1.

Prerequisite: Successful audition. A select choral ensemble.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1062 - Madrigal Singers

Lab. 2. Credit 0-1.

Prerequisite: Successful audition. A select chamber ensemble open, by audition, to all university students. The ensemble will consist of 16 to 20 singers who will primarily perform music from the Renaissance period and will perform one "Madrigal Feaste" per school year.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1065 - Mastersingers

Lab. 2. Credit 0-1.

A choral ensemble open to students and members of the community for the purpose of performing major choral works.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1070 - Concert Choir

Lab. 3. Credit 0-1.

A large choral ensemble open to all university students.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1075 - Afro-Caribbean Ensemble

Lec. 2. Credit 1.

Prerequisite: Permission of the instructor. Students will explore and learn about the Afro-Caribbean culture through a hands-on study of Afro-Caribbean instruments, imported from Trinidad and Tobago, as well as other authentic resources. This hands-on pedagogical approach will enhance the students' educational interest, understanding, and appreciation for the Afro-Caribbean diaspora, while increasing their involvement with the campus and community. As part of the students' assessment, members of this ensemble will be expected to participate in public concerts, educational workshops, and assembly presentations. These service opportunities will provide students with an enriched educational experience and promote personal growth as they become community ambassadors for cultural diversity.

MUS 1076 - Beginning West African Drumming

Lec. 2. Credit 1.

Prerequisite: Consent of instructor. The performance of drum rhythms and songs from Ghana and surrounding countries.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1077 - Advanced West African Drumming

Lec. 2. Credit 1.

Prerequisite: MUS 1076. A continuation of the performance of drum rhythms and songs from Ghana and surrounding countries.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1078 - Beginning West African Dance

Cross-listing: PHED 1250

Lab. 2. Credit 1.

Performance of dances and songs from Ghana and surrounding countries.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1079 - Advanced West African Dance

Cross-listing: PHED 1260

Lab. 2. Credit 1.

Prerequisite: MUS 1078. A continuation of the performances of dances and songs from Ghana and surrounding countries.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1080 - Bryan Symphony Orchestra

Lab. 2. Credit 0-1.

Prerequisite: Successful audition. A symphony orchestra including students, faculty and regional musicians.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1085 - University Orchestra

Lab. 3. Credit 0-1.

An orchestra open to all university students, exploring

repertoire for chamber and full symphony orchestra.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1090 - Jazz Ensemble

Lab. 3. Credit 0-1.

Prerequisite: Successful audition. Organized instrumental groups rehearsing and performing music in the jazz and "Pop" idiom.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1091 - Jazz Lab Band

Lab. 3. Credit 0-1.

An instrumental experience in the jazz/pop idiom; open to all students.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1111 - Functional Performance Band

Lab. 2-5. Credit 1.

Corequisite: MUS 1025, MUS 1026, MUS 1033, MUS 1040 or MUS 1045. Techniques involved in preparation for public band performance.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1112 - Functional Performance Choir

Lab. 2-5. Credit 1.

Corequisite: MUS 1060, MUS 1065 or MUS 1070. Techniques involved in preparation for public choral performance.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1113 - Functional Performance Orchestra

Lab. 2-3. Credit 1.

Corequisite: MUS 1080 or MUS 1085. Techniques involved in preparation for public orchestral performance.

All music majors must achieve a grade of "C" in each

music course. If a lower grade is earned, the student must repeat the course.

MUS 1114 - Functional Performance Jazz

Lab. 3. Credit 1.

Corequisite: MUS 1090 or MUS 1091. Techniques involved in preparation for public jazz performance.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3006 - Opera Workshop

Lab. 2. Credit 0-1.

Prerequisite: Successful audition. Techniques of auditioning, staging, rehearsal and production of musical comedy and opera.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

Music, Private Instruction (Lower Division)

MUS 1000 - Private Composition

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1100 - Private Piano

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1200 - Private Voice

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1300 - Private Violin

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1301 - Private Violoncello

Credit 1-2.

All music majors must achieve a grade of "C" in each

music course. If a lower grade is earned, the student must repeat the course.

MUS 1302 - Private String Bass

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1303 - Private Viola

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1350 - Private Harp

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1400 - Private Flute/Piccolo

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1401 - Private Oboe/English Horn

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1402 - Private Clarinet

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1403 - Private Bassoon

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1404 - Private Saxophone

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1500 - Private Trumpet

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1501 - Private Horn

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1502 - Private Trombone

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1503 - Private Tuba/Euphonium

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1600 - Private Organ

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1700 - Private Percussion

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1800 - Private Harpsichord

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 1900 - Private Guitar

Credit 1-2.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

Music, Private Instruction (Upper Division)

MUS 3000 - Private Composition

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3100 - Private Piano

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3200 - Private Voice

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3300 - Private Violin

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3301 - Private Violoncello

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3302 - Private String Bass

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3303 - Private Viola

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3350 - Private Harp

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private

instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3400 - Private Flute/Piccolo

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3401 - Private Oboe/English Horn

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3402 - Private Clarinet

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3403 - Private Bassoon

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In

addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3404 - Private Saxophone

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3500 - Private Trumpet

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3501 - Private Horn

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3502 - Private Trombone

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3503 - Private Tuba/Euphonium

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3600 - Private Organ

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3700 - Private Percussion

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3900 - Private Guitar

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 3950 - Junior Recital

Credit 1.

Prerequisite: Consent of studio instructor. Corequisite: Enrollment in Upper Level Private Instruction in pertinent studio.

Recital fee applies. The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. Bachelor of Music in Performance majors must earn a grade of B or better to pass.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 4000 - Senior Recital

Credit 1.

Prerequisite: Consent of studio instructor. Corequisite: Enrollment in Upper Level Private Instruction in pertinent studio.

Recital fee applies. The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. Bachelor of Music in Performance majors must earn a grade of B or better to pass.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 4400 (5400) - Composition

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

MUS 4500 (5500) - Conducting

Credit 1-2.

The completion of four semesters in the Lower Division is required for enrollment in the Upper Division. In addition, each applicant must be approved by the jury hearing his/her performance examination at the end of the fourth semester, and also by his/her private instructor before being allowed to register for study at the 3000-level. This course can be repeated for multiple credit.

All music majors must achieve a grade of "C" in each music course. If a lower grade is earned, the student must repeat the course.

Music Education

MUED 1820 - Introduction to Music Education

Lab. 3. Credit 1.

Prerequisite: MUS 1140 and MUS 1150. Introduction to the music education profession with emphasis on observing a variety of K-12 public school teaching/conducting settings. Music Education majors only.

MUED 3110 - Materials and Methods in Music, Grades K-5

Lec. 3. Lab. 1. Credit 3.

Prerequisite: Full admission to the Teacher Education Program and MUS 1024. This course will explore materials, methods and techniques used in teaching general music to children in grades Kindergarten through five. Public school field experience required.

MUED 3130 - Materials and Methods in Instrumental Music, Grades 6-12

Lec. 3. Lab. 1. Credit 3.

Prerequisite: Full admission to the Teacher Education Program and MUS 1024. Intended for the instrumental music education major, this course will explore a variety of materials, methods and techniques which can be used to build and maintain successful school band and orchestra programs. Public school field experience required.

MUED 3140 - Materials and Methods in Vocal Music, Grades 6-12

Lec. 3. Lab. 1. Credit 3.

Prerequisite: Full admission to the Teacher Education Program and MUS 1024. Intended for the vocal/general music education major, this course is directed towards developing a working knowledge of teaching strategies necessary for successful choral/general music programs. Public school field experience required.

MUED 3230 - Marching Band Techniques

Fall. Lec. 2. Credit 2.

Prerequisite: Full admission to the Teacher Education Program, MUS 1024, MUS 2130, MUS 2140, and Harmony/AT Exam; MUED 1820 with a grade of B. Group and individual drill maneuvers; music selection and arranging; and designing and charting for effective outdoor performances.

MUED 3620 - Fundamentals of Conducting

Lec. 1. Credit 1.

Prerequisite: MUS 1024, MUS 2130, MUS 2140, and Harmony/AT Exam; MUED 1820 with a grade of B. Technique, practice and principles of conducting. Development of effective hand and baton techniques.

MUED 3630 - Instrumental Conducting and Literature

Lec. 1. Lab. 2. Credit 2.

Prerequisite: MUED 3620. Technique, practice, and principles of instrumental conducting in performance through a study of the standard repertoire.

MUED 3640 - Choral Conducting and Literature

Lec. 1. Lab. 2. Credit 2.

Prerequisite: MUED 3620. Technique, practice and principles of choral conducting in performance through a study of the standard repertoire.

MUED 3735 - String Pedagogy and Literature I

Lec. 1. Lab. 2. Credit 2.

Techniques and methods used in developing a public-school string education program.

MUED 3740 - String Pedagogy and Literature II

Lec. 1. Lab. 1. Credit 1.

Survey of string literature from the 17th Century to the present, which is appropriate to the development of the public-school string program.

MUED 3810 - Practicum in Music Education I

Credit 1.

Corequisite: MUS 1024, MUS 2130, MUS 2140, and Harmony/AT Exam; MUED 1820 with a grade of B; and Full admission to the Teacher Education Program. Supervised work experiences in the public schools stressing the translation of theory into practice.

MUED 3830 - Practicum in Music Education II, Instrumental

Credit 1.

Prerequisite: Full admission to the Teacher Education Program, MUS 1024, MUS 2130, MUS 2140, MUED 3620, and Harmony/AT Exam; MUED 1820 with a grade of B. Corequisite: MUED 3130. Instrumental music education majors will have the opportunity to translate theory into practice through guided work experiences in the public schools.

MUED 3840 - Practicum in Music Education II, Vocal

Credit 1.

Prerequisite: Full admission to the Teacher Education Program, MUS 1024, MUS 2130, MUS 2140, MUED 3620, and Harmony/AT Exam; MUED 1820 with a grade of B. Corequisite: MUED 3140. Intended for the vocal/general music education major, this course provides the student with practical teaching experience in secondary choral/general music classes.

MUED 4510 - Special Problems

Lab. 4. Credit 1-2.

Prerequisite: Consent of appropriate area coordinator. Work in a field approved by the coordinator.

MUED 4520 - Special Problems

Lab. 4. Credit 1-2.

Prerequisite: Consent of appropriate area coordinator. Work in a field approved by the coordinator.

MUED 4850 (5850) - Workshop in Music Education

Credit 1-3.

Laboratory approach providing opportunities for experienced music education personnel to study in depth music education problems.

MUED 4870 - Student Teaching in Music I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: MUED 4880 and MUED 4890.

Activities directly related to teaching performance; planning and presenting lessons, directing study, and managing the classroom and rehearsal.

A grade of B is required to meet degree requirements.

MUED 4871 - Residency I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: MUED 4872. Performance based clinical experience in authentic settings involving planning appropriate instruction based on student's needs, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice.

A grade of B is required to meet degree requirements.

MUED 4872 - Professional Seminar I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: MUED 4871. Seminar for residency I candidates to develop curriculum, identify effective instructional strategies, and implement appropriate assessment methods to support and meet the needs of all learners.

MUED 4880 - Student Teaching in Music II

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: MUED 4870 and MUED 4890. Study of personal-professional characteristics, human relations skills, and educational philosophy in teaching. A grade of B is required to meet degree requirements.

MUED 4881 - Residency II

Credit 10.

Prerequisite: Full admission to the Teacher Education Program, and MUED 4871 with a grade of B. Corequisite: MUED 4882. Performance based full time clinical experience in authentic settings involving planning appropriate instruction based on student's needs, demonstrating effective instructional strategies,

creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice.

MUED 4882 - Professional Seminar II

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: MUED 4881. Seminar for residency II candidates supporting professional development in areas of planning, assessment, instruction, classroom management, communication and reflection.

MUED 4890 - Seminar: Education and Society

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: MUED 4870 and MUED 4880. Seminar on issues related to the interrelationships among school, culture, and society; a historical, philosophical, and sociological analysis.

Music Therapy

MUST 1220 - Basic Techniques of Music Therapy

Lec. and Lab. 2. Credit 1.

Prerequisite: MUST major. Beginning skills for music therapy: song accompaniment, teaching and leading; song repertoire development; group leadership skills; basic instrumental skills.

MUST 2110 - Introduction to Music Therapy

Lec. 3. Credit 3.

Overview of the field of music therapy; therapeutic applications of music. Professional aspects of the discipline.

MUST 2220 - Intermediate Techniques of Music Therapy

Lec. and Lab. 2. Credit 1.

Prerequisite: MUST major; MUST 1220 or consent of instructor. Teaching and modeling techniques; therapy techniques: relaxation with music, songwriting, musical improvisation, song arranging for ensembles, song repertoire development.

MUST 2310 - Clinical Orientation

Lec. 2. Credit 2.

Prerequisite: MUST major; MUST 2110 with a grade of C or better. The music therapy treatment process and related clinical skills.

MUST 3220 - Advanced Techniques of Music Therapy

Lec. and Lab. 2. Credit 1.

Prerequisite: MUST major; MUST 1220, MUST 2220 or consent of instructor. Advanced group leadership techniques and music therapy procedures, including: lyric discussion, client songwriting, advanced improvisation. Group process; music therapy with various treatment models.

MUST 3520 - Psychology of Music

Lec. 3. Credit 3.

Human musical behavior, auditory perception, emotional response to music; reading and evaluating research literature in psychology of music.

MUST 3530 - Music Therapy Research

Lab. 2. Credit 1.

Prerequisite: MUST major with grade of C or better in MUST 3520; admission to Professional Level. Research designs and models; assigned project in music therapy/music psychology research.

MUST 4110 - Special Topics in Music Therapy

Lab. 4. Credit 2.

Prerequisite: Consent of Director of Music Therapy. Individualized study in an area of music therapy research or clinical practice approved by the instructor.

MUST 4220 - Music Therapy Theory and Practice I

Lec. 3. Credit 3.

Prerequisite: MUST major; admission to Professional Level. Theory and applications of music therapy with identified conditions and disabilities. Study of professional issues.

MUST 4230 - Music Therapy Theory and Practice II

Lec. 3. Credit 3.

Prerequisite: MUST major; admission to Professional Level. Theory and applications of music therapy with identified conditions and disabilities. (Continuation of MUST 4220.)

MUST 4510 - Practicum in Music Therapy

Credit 5.

Prerequisite: MUST major; consent of Director of Music Therapy. Supervised clinical field work in music therapy. Setting, clients and skill-development levels to be designated in consultation with instructor.

MUST 4610 - Internship in Music Therapy

Lab. 12. Credit 6.

Prerequisite: MUST major; completion of all required on-campus course work. A six-month (1040 hours) internship at an AMTA-approved training site.

Nursing

NURS 1020 - First-Year Connection: University and Nursing

Credit 1.

Prerequisite: First-time college student, minimum ACT score of 20 and high school GPA 3.00. A course designed to enhance connection of the first-time college student with the University and to nursing. This course is designed to augment skills required for academic success through academic and non-academic out-of-classroom activities.

NURS 2300 - Introduction to Professional Nursing Concepts I

Lec. 2. Credit 2.

Historical perspectives, mathematics, and terminology basic to nursing; critical thinking and professional communication; and roles of the professional nurse.

NURS 3110 - Introduction to Applied Clinical Pharmacology

Lec. 45. Credit 3.

Prerequisite: BIOL 1010 Introduction to drug classifications, mechanism of action, and management of medications in the clinical setting. The focus of the course is on identification and management of side effects, drug-drug and drug-food interactions, and evaluation of medications' effectiveness.

NURS 3240 - Pharmacological Concepts in Nursing I

Lec. 3. Credit 3.

Prerequisite: Admission to Upper Division Nursing. Introduction to drug classifications, mechanisms of action, and management of medications. Includes study and test-taking skills.

NURS 3250 - Medical Surgical Nursing I

Lec. 4. Credit 4.

Prerequisite: NURS 3240, NURS 3260, NURS 3261, NURS 3270 and NURS 3271. Corequisite: NURS 3280. Concepts of psychosocial and physiological aspects of health/illness and therapeutic communication.

NURS 3260 - Health Assessment and Promotion

Lec. 2. Credit 2.

Prerequisite: Admission to Upper Division Nursing.
Corequisite: NURS 3261. Introductory course to health assessment will focus on comprehensive data collection through history and physical examination.

NURS 3261 - Health Assessment and Promotion Lab

Lab. 1. Credit 1.

Prerequisite: Admission to Upper Division Nursing.
Corequisite: NURS 3260. Lab experience focuses on the integration and application of the psychomotor skills necessary for assessing the health status of clients.

NURS 3270 - Fundamentals of Nursing

Lec. 2. Credit 2.

Prerequisite: Admission to Upper Division Nursing.
Corequisite: NURS 3271. Course is designed to introduce the student to basic concepts, principles and skills necessary for building an effective nursing practice. Nursing process is introduced as a foundation for future clinical application.

NURS 3271 - Fundamentals of Nursing Lab

Lab. 1. Credit 1.

Prerequisite: Admission to Upper Division Nursing.
Corequisite: NURS 3270. Introductory course in nursing designed to teach the student basic clinical skills and apply the process of critical thinking.

NURS 3280 - Medical Surgical Nursing I: Lab

Lab. 9. Credit 3.

Prerequisite: NURS 3240, NURS 3260, NURS 3261, NURS 3270 and NURS 3271. Corequisite: NURS 3250. Performance of nursing skills in lab and clinical settings based on principles of nursing process and practice.

NURS 3281 - Health Assessment and Promotion

Lec. 2. Lab. 1. Credit 3.

This course is an introduction to health assessment based on an understanding of anatomy and physiology and social sciences. The focus is on comprehensive data collection through history and physical examination.

NURS 3290 - Pathophysiological Processes for the Professional Nurse I

Lec. 2. Credit 2.

Prerequisite: NURS 3240, NURS 3260, NURS 3261, NURS 3270 and NURS 3271. Focus on the physiological responses to various common diseases, disorders, and disruptions affecting humans.

NURS 3320 - Community Health Nursing

Lec. 3. Credit 3.

Prerequisite: NURS 3260, NURS 3261, NURS 3270, NURS 3271. Corequisite: NURS 3321. Focus on the dynamics and nursing needs of individuals, families, and communities.

NURS 3321 - Community Health Nursing: Lab

Lab. 9. Credit 3.

Prerequisite: NURS 3260, NURS 3261, NURS 3270, NURS 3271. Corequisite: NURS 3320. Focus on the dynamics and nursing needs of individuals, families, and communities.

NURS 3330 - Enrichment in Nursing

Lec. 30. Credit 2.

Prerequisite: Admission into Upper Division Nursing. Focus of study is individual and group remediation for students who are readmitted into the SON.

NURS 3350 - Medical Surgical Nursing II

Lec. 4. Credit 4.

Prerequisite: NURS 3240, NURS 3260, NURS 3261, NURS 3270 and NURS 3271. Corequisite: NURS 3361. Medical-surgical nursing concepts including communication skills, teaching/learning principles, ethical/legal, and economic issues.

NURS 3360 - Medical Surgical Nursing II

Lec. 5. Credit 5.

Corequisite: NURS 3361. Medical-surgical nursing concepts; also including communication skills, teaching/learning principles, ethical/legal, and economic issues.

NURS 3361 - Medical Surgical Nursing II: Lab

Lab. 9. Credit 3.

Prerequisite: NURS 3240, NURS 3260, NURS 3261, NURS 3270 and NURS 3271. Corequisite: NURS 3350. Emphasizes the application of the nursing process in a variety of medical-surgical clinical settings.

NURS 3370 - Mental Health Nursing

Lec. 3. Credit 3.

Prerequisite: NURS 3240, NURS 3260, NURS 3261, NURS 3270 and NURS 3271. Corequisite: NURS 3371. Basic mental health nursing concepts; also including communication skills, teaching/learning principles, ethical/legal, and economic issues.

NURS 3371 - Mental Health Nursing: Lab

Lab. 6. Credit 2.

Prerequisite: NURS 3240, NURS 3260, NURS 3261, NURS 3270 and NURS 3271. Corequisite: NURS 3370. Emphasizes the application of the nursing process in a variety of mental health clinical settings.

NURS 3380 - Pathophysiological Processes for the Professional Nurse

Lec. 3. Credit 3.

This course will examine the outcomes of disruption of normal physiology; the alterations and mechanisms involved in the disruption; and the manifestations in disease and at-risk conditions. Major diseases will be explored, in part by using a conceptual approach. The focus of the course is to provide the professional nurse with an understanding of pathophysiological principles as the basis for nursing assessment and therapeutic intervention.

NURS 3390 - Pathophysiological Processes for the Professional Nurse II

Lec. 2. Credit 2.

Prerequisite: NURS 3290. Focuses on physiological responses to acute and critical diseases, disorders, and disruptions affecting humans.

NURS 3430 - Survey of Pharmacological Aspects of Nursing

Lec. 3. Credit 3.

Prerequisite: NURN standing or permission of the instructor. Review and update of major drug groups, and administering drugs, and intravenous solutions with implications for nursing practice.

NURS 3465 - Bridging to Professional Nursing Practice

Credit 4.

An online course designed for RN's to bridge the gap between technical skills and professional nursing practice by focusing on self-analysis and validation of one's own ability to utilize critical thinking, communication, and therapeutic intervention in nursing practice and to identify improvement areas for lifelong learning in a changing healthcare environment.

NURS 4000 - Women's Health and Perinatal Nursing

Lec. 3. Credit 3.

Prerequisite: NURS 3261, NURS 3290 and NURS 3350. Corequisite: NURS 4001. This course focuses on concepts of professional nursing care of women in their

childbearing years and their families. This course encompasses knowledge of growth and development, culture, family, and pathophysiology from the natural and social sciences, and liberal arts in assessing, implementing, and evaluating the health needs of these populations.

NURS 4001 - Women's Health and Perinatal Nursing: Lab

Lab. 6. Credit 2.

Prerequisite: NURS 3261, NURS 3290 and NURS 3350. Corequisite: NURS 4000. This course focuses on implementation of the nursing process with women in their childbearing years and their families. This course applies knowledge of growth and development, culture, family, and pathophysiology from the natural and social sciences, and liberal arts in assessing, implementing and evaluating the health needs of these populations.

NURS 4010 - Gerontological Nursing

Lec. 2. Credit 2.

Prerequisite: Admission into Upper Division Nursing. Physical and psychosocial processes affecting nursing and the older population.

NURS 4100 - Nursing Care of Children

Lec. 3. Credit 3.

Prerequisite: NURS 3261, NURS 3290 and NURS 3350. Corequisite: NURS 4101. This course focuses on concepts of professional nursing care of children and their families. This course encompasses knowledge of growth and development, culture, family, and pathophysiology from the natural and social sciences, and liberal arts in assessing, implementing and evaluating the health needs of these populations.

NURS 4101 - Nursing Care of Children: Lab

Lab. 6. Credit 2.

Prerequisite: NURS 3261, NURS 3290 and NURS 3350. Corequisite: NURS 4100. This course focuses on implementation of the nursing process with children and their families. This course applies knowledge of growth and development, culture, family and pathophysiology from the natural and social sciences and liberal arts in assessing, implementing, and evaluating the health needs of these populations.

NURS 4110 - Applied Clinical Pharmacology II

Lec. 45. Credit 3.

Prerequisite: NURS 3110, BIOL 2020. Further study of drug classifications, mechanism of action, and management of medications in the clinical setting. Focus

of the course is on management of medication used in inpatient settings.

NURS 4200 - Women's Health and Perinatal Nursing

Lec. 3. Credit 3.

Prerequisite: NURS 3260, NURS 3250. Corequisite: NURS 4201. This course focuses on concepts of professional nursing care of women in their childbearing age and their families.

NURS 4201 - Women's Health and Perinatal Nursing Lab

Lab. 6. Credit 2.

Prerequisite: NURS 3261, NURS 3280. Corequisite: NURS 4200. This course focuses on implementation of the nursing process with women in their childbearing age and their families.

NURS 4230 - Pharmacological Concepts in Nursing II

Lec. 2. Credit 2.

Continued study of the major drug groups with emphasis on the responsibility of the nurse in medication administration, patient education, and health promotion.

NURS 4300 - Research in Health Care

Lec. 3. Credit 3.

Prerequisite: NURS 3250, NURS 3280 or permission of instructor. Study the research process with development and presentation of a completed research proposal.

NURS 4320 - Health Care Delivery in the United States

Lec. 45. Credit 3.

Overview of the US Health System delivery and the influence health policy has on healthcare operations.

NURS 4350 - Health Care of Communities (for RN-BSN Students)

Lec. 4. Credit 4.

Corequisite: NURS 4351. Focus on the dynamics and nursing needs of individuals, families, communities, national, and international groups. (for RN-BSN Students)

NURS 4351 - Health Care of Communities: Lab (for RN-BSN Students)

Lab. 9. Credit 3.

Prerequisite: NURS 4000, NURS 4001, NURS 4100 and NURS 4230. Corequisite: NURS 4430. Organization and delivery of nursing care to individuals, families, and

groups in a variety of community health care settings (for RN-BSN Students.)

NURS 4430 - Health Care of Communities

Lec. 3. Credit 3.

Prerequisite: NURS 4000, NURS 4001, NURS 4100 and NURS 4230. Corequisite: NURS 4431. Focus on the dynamics and nursing needs of individuals, families, communities, national, and international groups.

NURS 4431 - Health Care of Communities: Lab

Lab. 9. Credit 3.

Prerequisite: NURS 4000, NURS 4001, NURS 4100, NURS 4101 and NURS 4230. Corequisite: NURS 4430. Organization and delivery of nursing care to individuals, families, and groups in a variety of community health care settings.

NURS 4450 - Leadership and Management

Lec. 3. Credit 3.

Prerequisite: NURS 4000, NURS 4001, NURS 4100 and NURS 4230. Corequisite: NURS 4451. Introduction to concepts of leadership and management in nursing; preparation for role transition from student to graduate.

NURS 4451 - Leadership and Management: Lab

Lab. 12. Credit 4.

Prerequisite: NURS 4000, NURS 4001, NURS 4100 and NURS 4230. Corequisite: NURS 4450. Clinical experiences applying concepts of management and leadership.

NURS 4460 - Preparation for Licensure

Lec. 1. Credit 1.

Corequisite: Senior 2 status or permission from the instructor. Preparation for success on the National Registered Nurse Licensure Exam.

NURS 4800 - Gerontological Nursing

Lec. 2. Credit 2.

Prerequisite: NURS 3250, NURS 3270, NURS 3271, NURS 3280 and NURS 3290. Physical and psychosocial processes affecting nursing the older patient.

Nursing, Electives

NURS 3000 - Ethics of Nursing Practice

Lec. 1. Credit 1.

Prerequisite: Admission to Upper Division Nursing; concurrent enrollment; or permission of instructor. An elective course that provides an introduction to the

ethical principles that guide nursing practice. Students will examine current ethical issues encountered in nursing practice in the context of the healthcare setting.

NURS 3010 - Managing the End of Life

Lec. 1. Credit 1.

Prerequisite: Admission to Upper Division Nursing; concurrent enrollment; or permission of instructor. The role of culture, palliative and hospice care, family dynamics, advance directives, and spirituality encountered during death and dying will be described. Interactions, healing strategies, and rituals that use the senses and bring comfort and peace for the dying will also be explored.

NURS 3020 - The Merging of Two Worlds: Spirituality and Healthcare

Lec. 1. Credit 1.

Prerequisite: Admission to Upper Division Nursing; concurrent enrollment; or permission of instructor. This course is designed for students in the healthcare disciplines. To provide a holistic perspective of how spirituality and religion impact health and resultant healthcare decisions.

NURS 3030 - Cultural Sensitivity in the Healthcare Setting

Lec. 1. Credit 1.

Prerequisite: Admission to Upper Division Nursing; concurrent enrollment; or permission of instructor. Introduction to diverse cultures and promotion of the development of cultural sensitivity in health care.

NURS 3040 - Collaborative Care: Nurses' Role in the Healthcare Team

Lec. 3. Credit 3.

This course examines the role of the interdisciplinary health care team to make a difference in the lives of patients. It prepares the student to contribute in significant ways to safe and effective care within a multidisciplinary team.

NURS 3050 - Pediatric Illnesses and Related Care

Lec. 1. Credit 1.

This course provides a study of the more common illnesses of the pediatric population requiring inpatient treatment.

NURS 3060 - Breastfeeding and Lactation Management

Lec. 2. Credit 2.

This elective course in nursing for students of all disciplines is designed to introduce and provide in-depth knowledge on breastfeeding and human lactation.

NURS 3450 - Personal Wellness Management

Lec. 3. Credit 3.

Holistic approach to assisting individuals in the promotion of wellness including: health guidance, nutrition, stress reduction, and fitness.

NURS 4050 - Sign Language I

Cross-listing: LIST, SPED

Lec. 3. Credit 3.

Introduction to and development of a basic vocabulary in Signed English concepts in the use of alternative methods of communication.

NURS 4090 - Sign Language II

Lec. 3. Credit 3.

Prerequisite: NURS 4050. Continuation of vocabulary development in Signed English and appreciation of practical situations in various professional fields.

NURS 4240 - Clinical Immersion at Disciplinary Interfaces

Ind. 3. Credit 3.

Prerequisite: Nursing students: Junior or Senior Standing or consent of instructor. Chemical Engineering students: Junior or Senior Standing in Chemical Engineering or consent of instructor. This course focuses on team-based identification of unmet medical needs and development of robust solutions. Select disease conditions will be discussed and technologies used to address those conditions will be examined. Students will participate in simulation lab and clinical immersion for experiential learning in hospitals, urgent care facilities, assisted living facilities, senior citizen centers, and/or other healthcare settings.

NURS 4360 - Oncology Nursing

Lec. 3. Lab. 1. Credit 3.

Prerequisite: Consent of instructor. Focus on oncology nursing and hospice concepts used to provide care for the clients with cancer in a community or institutional setting.

NURS 4370 - Preparation for Parenting

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing or consent of

instructor. Focus on parenting skills with infants and children and labor, delivery, and newborn care.

NURS 4400 - Introduction to Critical Care Nursing

Lec. 3. Credit 3.

Prerequisite: Consent of instructor. Developing critical care assessment skills, emphasizing nursing decision-making, problem-solving, and intervention.

NURS 4410 - Cardiorespiratory Intensive Care

Lec. 3. Credit 3.

Prerequisite: Consent of instructor. Care of clients with cardiovascular and respiratory deficits requiring invasive, therapeutic nursing interventions; cardiac dysrhythmias.

NURS 4500 - School Health Nursing

Credit 3.

Prerequisite: Senior Nursing major or RN degree. Introduction to school health nursing and the role of the school nurse as caregiver, coordinator, manager, consultant, and leader. This course provides registered nurses with the necessary beginning skills to manage a comprehensive school health program.

NURS 4610 - Summer Clinical Extern

Credit 3.

Prerequisite: NURS 3350 and NURS 3361. Skill-oriented clinical experience based on nursing process in the clinical area of the acute care or extended care facility.

NURS 4700 - Adventures in Global Awareness: Expanding Cultural Sensitivity

Sem. 1. Lab. 6. Credit 3.

The course provides a trans-cultural experience through international travel and self-exploration to increase personal and cultural awareness, sensitivity, and respect.

NURS 4810 - Concepts of Gerontology

Cross-listing: PSY 4810 (5810), SOC 4810

Lec. 3. Credit 3.

Prerequisite: PSY 2130, PSY 3300 or SOC 1010.

Physical and psychosocial aging processes. Issues in the care of the senior adult.

NURS 4981 - Independent Study

Credit 1.

Prerequisite: Admission to Upper Division Nursing; concurrent enrollment; or permission of instructor. Allows the student to undertake study in an area (topic) of nursing where there is not appropriate course. Students

may take a total of up to 6 hours of independent study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

NURS 4982 - Independent Study

Credit 2.

Prerequisite: Admission to Upper Division Nursing; concurrent enrollment; or permission of instructor. Allows the student to undertake study in an area (topic) of nursing where there is not appropriate course. Students may take a total of up to 6 hours of independent study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

NURS 4983 - Independent Study

Credit 3.

Prerequisite: Admission to Upper Division Nursing; concurrent enrollment; or permission of instructor. Allows the student to undertake study in an area (topic) of nursing where there is not appropriate course. Students may take a total of up to 6 hours of independent study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

NURS 4990 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits.

NURS 4991 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit.

NURS 4992 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit.

NURS 4993 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit.

NURS 4994 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit.

NURS 4995 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit.

NURS 4996 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit.

NURS 4997 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit.

NURS 4998 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits. Students may take a total of up to 6 hours of Special Topics hours

with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit.

NURS 4999 - Special Topics

Credit 1-3.

Directed study and research on a selected topic. Available to students on an individual basis, with consent of the Dean, as faculty load permits. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit.

Philosophy

PHIL 1030 - Introduction to Philosophy

Lec. 3. Credit 3.

Prerequisite: Completion of two semesters of college work. Introduction to central problems of the nature of humanity, ethics, religion, justice, and knowledge of reality.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

PHIL 2100 - Introductory Logic

Lec. 3. Credit 3.

Prerequisite: Completion of two semesters of college work. Consideration of uses of language, definition, and informal fallacies; forms of valid deductive argument; elementary propositional logic; and inductive arguments.

PHIL 2250 - Introductory Ethics

Lec. 3. Credit 3.

Prerequisite: Completion of two semesters of college work. Appraisal of conduct and moral reasoning by the study of traditional theories of the good life and their bearing upon contemporary moral issues.

PHIL 3010 - Philosophy of Religion

Lec. 3. Credit 3.

Prerequisite: Junior Standing. Consideration of religious issues such as the nature of religious experience, existence and nature of God, verification of religious claims, and evil and human destiny.

PHIL 3310 - History of Ancient and Medieval Philosophy

Lec. 3. Credit 3.

Prerequisite: Completion of two semesters of college work. Study of the most important philosophical systems which developed in the Mediterranean areas in Western

Europe from the time of Socrates through St. Thomas Aquinas.

PHIL 3320 - History of Modern Philosophy

Lec. 3. Credit 3.

Prerequisite: Completion of two semesters of college work. Study of selected philosophical systems which developed in the Western World from the 1500s to the time of the 20th century.

PHIL 4010 - The Nature of Knowledge

Lec. 3. Credit 3.

Prerequisite: Completion of two semesters of college work. Issues and problems concerning the nature and scope of knowledge: truth and evidence, skepticism and certainty, memory, and perception.

PHIL 4020 - Comparative Religion

Lec. 3. Credit 3.

Prerequisite: Completion of two semesters of college work. Study of the great world religions with an emphasis on the distinctive concepts of each.

PHIL 4950 - Independent Study

Credit 1-3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of philosophy where there is no appropriate course. May be taken twice, provided the topic is different.

PHIL 4960 - Special Topics

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue or interest area in philosophy.

Physical Education, Activity Courses

PHED 0900 - Conditioning and Agility

Credit 1.

This course is designed for people interested in learning the importance of athletic conditioning and agility. Focus is on improving cardiovascular health, coordination, and explosive skills involved in athletics, every day activity, and overall health.

PHED 1000 - Modified Seasonal Sports

Credit 1.

This course is designed for students to learn and understand modifications that are available for an assortment of sporting activities. Students will learn to

modify equipment and design rules and regulations that meet the needs of individuals with physical or mental disabilities.

PHED 1002 - Physical Fitness Test

Credit 0.

This course is designed to facilitate all majors in the Exercise Science, Physical Education and Wellness department in tracking and timely completion of the required (once per academic year) physical fitness test. The course is intended to ensure quality participation/completion of the yearly fitness test and to aid students in keeping track of when to take the test. Six components of physical fitness are evaluated expecting a health enhancing level of fitness in five of the six areas tested. Cardiovascular endurance, muscular endurance, muscular strength, flexibility, body composition and muscular power are included in the test battery. Using this format, students will (1) be given multiple opportunities to learn about each individual assessment piece, (2) have more individualized instruction on best practices for improving in any/all areas of fitness, (3) have monitored practice opportunities prior to the actual testing date, (4) be allowed to remediate and retest in areas that are not passed.

PHED 1005 - Lifetime Fitness and Wellness

Credit 2.

This course is designed to explore and apply principles of lifetime physical fitness, with a key focus on optimal wellness, nutrition and disease prevention. Online delivery method.

PHED 1010 - Tennis

Credit 1.

This course is designed for students to learn how to play the game of tennis. Basic strokes of tennis will be covered, including forehand, backhand, and the serve. Court dimensions and markings as well as singles and doubles rules of game play will be included. Upon completion of this class, students should feel confident in their skills to participate in recreational tennis.

PHED 1011 - Intermediate Tennis

Credit 1.

PHED 1015 - Beginning Yoga

Credit 1.

This course is designed for the student who has little or no prior experience practicing yoga. Simple yoga poses

and controlled breathing techniques are included to calm the mind and strengthen the body. Students will need to have their own yoga mat.

PHED 1020 - Swimming

Credit 1.

This course is designed for non-swimmer or beginning swimmers to develop skills of swimming. Swimming pool/water safety will be addressed and students will learn to float and execute swim strokes including but not limited to the front crawl, back crawl and elementary backstroke.

PHED 1021 - Intermediate Swimming

Credit 1.

This course is for students with moderate to advanced swimming skills. Advanced swim strokes will be taught and students will participate in endurance swimming.

PHED 1025 - Advanced Yoga

Credit 1.

This course is designed for students who have experience practicing yoga. More advanced yoga poses and controlled breathing techniques are included to calm the mind and strengthen the body. Students will need to have their own yoga mat.

PHED 1030 - Bowling

(fee)

Credit 1.

This course is designed for students who have no prior knowledge of bowling to gain the necessary skills needed to successfully participate in bowling. Students will learn proper techniques, bowling etiquettes and score keeping. After completing this course students should have a clear understanding of bowling.

PHED 1031 - Advanced Bowling

Credit 1.

This course is designed for students who have a basic knowledge of bowling and builds on the skills learned in PHED 1030. Advanced bowling includes a brief review of proper form, different techniques and etiquette. Students will become competent in these skills in class and outside of the classroom.

PHED 1035 - Pickleball

Credit 1.

This course is for students who enjoy racket/paddle games. Pickleball is a net game that is similar to tennis and ping pong. Played on a court similar to badminton, pickleball is played with a wooden paddle and a plastic

ball – like a wiffleball. Skills and rules are easy to learn and pickleball a fun and competitive way to be active.

PHED 1040 - Archery

(fee)

Credit 1.

This course is designed for people looking for a place to learn about and potentially begin the hobby of archery. This is an off-campus course, which focuses on the history, safety, variations of bows, variations of arrows, and skills associated with beginning archery.

PHED 1050 - Basketball for Women

Credit 1.

This course introduces the fundamental skills of basketball for women. Emphasis is placed on skill development, rules and fair play. Dribbling, passing, shooting and offensive and defensive strategies are among skills that will be focused on throughout the duration of the class. The main goal of the class is to strive for improvement in every aspect of the game of basketball.

PHED 1070 - Volleyball

Credit 1.

This course is designed to help students learn to play the game of volleyball using the proper technique, strategies and scoring. Students will demonstrate the skills of passing, setting and serving, as well as the knowledge of rotations of the players and each position's responsibilities, and how to keep score.

PHED 1080 - Racquetball and Handball

(fee)

Credit 1.

This course is designed to provide students with the knowledge and skill development necessary to be successful in playing racquetball and/or handball. Offensive and defensive strategies and scoring are also addressed.

PHED 1090 - Softball

Credit 1.

This course is designed to help students learn to play the game of softball using proper skills, strategies, and scoring. Students will become familiar with throwing, catching, and hitting in addition to rules and terminology. By the end of the semester students should have a basic understanding of the game of softball and feel confident in recreational game play.

PHED 1100 - Golf

(fee)

Credit 1.

This course is designed to give students the opportunity to learn the basic strokes and rules of game play for golf. Which clubs to use when and score keeping are included.

PHED 1101 - Advanced Golf

(fee)

Credit 1.

This course is for students who have completed PHED 1100 or have basic golf skills. Continuing to improve strokes and perfect golf skills as well as gaining knowledge of game play strategies is included.

PHED 1110 - Badminton

Credit 1.

This course is designed to give students basic information about the game/sport of badminton. Skill development, basic knowledge, rules and strategies of play for singles and doubles play are included in the course. Strokes and scoring are major components of this course.

PHED 1120 - Ballroom Dance

Credit 1.

Ballroom dance class is designed to help students learn basic to advanced ballroom dance steps, including but not limited to Foxtrot, Cha Cha, Rumba, Waltz and Tango. This class is appropriate for all levels of ballroom dancers. Students enjoy a culminating BALL at the end of each semester.

PHED 1150 - Riflery

(fee)

Credit 1.

This course is designed for people interested in the hobby of riflery. This course is based on recreational riflery, and covers topics such as; safety, rifle uses, recreational riflery, ammunition, sights, reloading, and competitive riflery rules/regulations.

PHED 1160 - Scuba and Skin Diving

(fee)

Credit 1.

This course is designed for students who want to learn to scuba/skin dive. Students spend time in the classroom and in the pool checking off on skills and practice diving before going out for a 'check off' dive. Students can become certified divers in this class.

PHED 1170 - Karate

Credit 1.

This course is designed for students who are interested in karate with little or no background in martial

arts. Beginners are encouraged to sign up for this course and start training in martial arts.

PHED 1171 - Kempojutsu - Close quarters combat methods

Credit 1.

The "Way of the Fist Methods" is the base martial arts of several systems taught today. This system is oriented toward those who would like an in-depth study of "Close Quarters Defensive Tactics". The program emphasizes practical martial arts methods-no hold high kicks and no forms to learn.

PHED 1172 - Tai Chi/Qigong

Credit 1.

Tai Chi is an ancient Chinese form of "Moving Meditation" and relaxation. Its movements achieve harmony and balance between the mind and body. The movements are designed to help you feel relaxed, yet alive and energized. Qigong is also known as "Energy Exercise". The practice of Qigong is done in place and relates more toward internal energy and health.

PHED 1173 - Samurai Sword-iaijutsu/kenjutsu

Credit 1.

The Samurai sword is the most notable weapon of the Japanese samurai warriors. Iaijutsu is the drawing of the sword. Kenjutsu is the collection of followon techniques after the draw. The student will learn numerous fighting skills of the samurai warriors. Classes will be taught using a bokken (wooden sword).

PHED 1180 - Self-Defense for Women

Credit 1.

The "Way of the Fist Methods" is the base martial arts of several systems taught today. This system is oriented toward those who would like an in-depth study of "Close Quarters Defensive Tactics". The program emphasizes practical martial arts methods-no hold high kicks and no forms to learn. Techniques are tailored to meet each individual's needs. Instruction is conducted in a friendly, self-paced learning environment. Unusual physical ability and flexibility are not required for the program.

PHED 1190 - Water Aerobics

Credit 1.

This class is designed to use the natural resistance of water against your body to provide a wide variety of conditioning activities: including but not limited to swimming, stretching, yoga, running, water weight exercises, and more. The purpose is to provide students

with water aerobic exercises that will help reduce unnecessary stress on joints.

PHED 1200 - Beginning Foil Fencing

Credit 1.

This course is for students who are interested in learning about foil fencing.

PHED 1220 - Active Lifestyles and Health

Lec. 1. Credit 1.

This course is designed for students to have multiple opportunities to participate in a variety of sports and physical activities in pursuit of a healthy lifestyle. Health topics including but not limited to physical fitness and nutrition will be covered.

PHED 1221 - Fitness Walking

Credit 1.

PHED 1230 - Map Reading/Orienteering

Credit 1.

This course is for students who are interested in learning about navigating by map reading and orienteering. There will be an equal amount of classroom work and hands on experience.

PHED 1240 - Soccer

Credit 1.

This course is designed for beginners as well as seasoned players to be able to participate in the game of soccer. Basic skills and drills will be used to teach or reinforce necessary soccer skills. In addition, rules of play, positions and offensive and defensive strategies will be covered. By the end of the course, students should feel confident in participating in recreational soccer.

PHED 1250 - Beginning West African Dance

Cross-listing: MUS 1078

Credit 1.

This course provides students with the history and basic principles of West African Dance. Through brief lecture, active participation, and group exercises, students will gain an understanding of the West African Culture and its dance origin.

PHED 1260 - Advanced West African Dance

Cross-listing: MUS 1079

Credit 1.

This course provides students with an in-depth study of West African Culture and advanced technical dance routines and implications.

PHED 1265 - Kickboxing

Credit 1.

Thai boxing or Muay Thai is a Martial Arts for of Thailand. It is known as the "art of eight limbs". This course is designed to introduce Thai boxing at basic skill levels. The class will be conducted in a friendly, self-paced manner. Protective gear will be required for safety as students learn basic punches, elbow strikes, knee strikes and kicking.

PHED 1275 - Disc Golf

Credit 1.

Disc golf has become a popular outdoor recreational activity all over the nation. This course is designed to provide basic instruction in various throws including the backhand throw, forehand drive, and the backhand roller. Students will learn about the drive, approach and putt as well as rules of game play and keeping score.

PHED 1280 - Kayaking

Credit 1.

This course is designed for the beginner kayaker. Fundamental skills and techniques will be discovered and practiced as well as rules and etiquette on the water and general safety. Once students have the knowledge and basic skills necessary to stay afloat, there will be multiple opportunities to go kayaking.

PHED 1290 - Basketball for Men

Credit 1.

This course introduces the fundamental skills of basketball. Emphasis is placed on skill development, rules and fair play. Dribbling, passing, shooting and offensive and defensive strategies are among skills that will be focused on throughout the duration of the class. The main goal of the class is to strive for improvement in every aspect of the game of basketball.

PHED 1360 - Slimnastics and Aerobics

Credit 1.

This class is designed to provide multiple and diverse opportunities for the student to exercise/workout in many different ways: including but not limited to yoga, circuit training, cross fit, exercise videos and more. The purpose is to provide many avenues of exercise so students might find something they enjoy and that fits into their ongoing exercise routine.

PHED 1370 - Weight Training and Physical Fitness

Credit 1.

This course offers training, instruction and practice in proper techniques of the development of muscular strength, endurance, and flexibility. Emphasis is placed on the application of scientific principles and methods used to build, improved and maintain proper muscular fitness. Body composition and nutrition for health and fitness are also discussed. After taking this course students should be able to apply common knowledge into individual workout plans.

PHED 1371 - Advanced Weight Training and Physical Fitness

Credit 1.

This course reviews the fundamentals of proper technique of weight training and provides for continued improvement in strength, endurance, and flexibility. Students will set workout goals and apply knowledge to individualized workout routines.

PHED 1372 - Weight Training and Physical Fitness for Women

Credit 1.

This course offers training, instruction and practice in proper techniques of the development of muscular strength, endurance, and flexibility for women. Emphasis is placed on the application of scientific principles and methods used to build, improved and maintain proper muscular fitness. Body composition and nutrition for health and fitness are also covered.

PHED 1374 - Cross Training

Credit 1.

This class combines cardiovascular exercises to raise your heart rate and burn calories with resistance exercises to tone and sculpt your muscles. This total body class combines compound exercise training with isolated muscle group training, to give a total body workout.

PHED 1390 - Firearm Safety, Hunting and Outdoorsmanship

Credit 1.

A course offered for people interested in becoming knowledgeable about firearms, hunting, and outdoorsmanship. The course covers topics such as the dangers of firearms, TWRA and national guidelines of hunting, as well as respectful conduct when hunting or being involved in outdoor activity.

PHED 1440 - Skeet and Trap Shooting (fee)

Credit 1.

A course offered for those interested in learning the

basics of skeet and trap shooting. This is an off-campus course. The course covers basic shotgun safety, ammunition, loading and reloading of shotgun shells, rules and regulations of competitive skeet and trap shooting.

PHED 1441 - Skeet and Trap Shooting Competition (fee)

Credit 1.

A course offered for those who regularly engage in competitive skeet and trap shooting, or as an extension class of PHED 1441. This course solely focuses on competitive skeet and trap shooting and participates in competitions.

PHED 1470 - Handgun Familiarization and Safety (fee)

Credit 1.

A course offered for people seeking knowledge about handgun safety, or interested in acquiring their Tennessee Handgun Carry Permit. This course covers topics such as; safety and dangers affiliated with handguns, political issues regarding handguns, ammunition, reloading, targeting, and the Tennessee Handgun Carry Permit written test and shooting test.

PHED 1505 - Divemaster

Credit 2.

Prerequisite: Pre-requisite – Minimum age 18; Certified SDI Advanced Adventure Diver or equivalent; Advance certification must include verifiable experience in deep, navigation, night, and limited vision specialties; Certified SDI Rescue Diver or equivalent; CPR certified and current; Proof of 40 logged dives/hours. This course is the next in the scuba diving series of certifications, that once successfully completed will lead to divemaster certification.

PHED 1540 - Rescue Diver

Lec. 1. Lab. 2. Credit 2.

This course is designed for the advanced diver to develop the knowledge base and necessary skill set to effectively perform diver rescues as well as assist in and administer necessary first aid in the event of an emergency. Skills such as how to perform self rescues, buddy rescues, recognize and calm potential panic divers, administer proper first aid to divers that have experienced dive related injuries, conduct effective search patterns and manage accident scenes are included. Rescue Diver Certification is available at the conclusion of this course.

PHED 1590 - Back Country Adventure I

Credit 1.

This course is designed for students to gain basic knowledge and skills to be able to participate safely in back-country adventures. Certain criteria must be met in order to participate in the off campus back country adventure trip.

PHED 1600 - Back Country Adventure II

Credit 1.

This course is an advanced course in back-country. Students will participate in relevant planning, practice and skill development to prepare for an extended back-country adventure trip.

PHED 1610 - Challenge Course-Team Building Facilitation

Credit 2.

This course is designed to provide the student with the knowledge and skills necessary to participate in and facilitate challenge course programs in various settings. Basic team building skills and challenges will be included.

PHED 1620 - Bouldering Movement and Technique

Credit 1.

This course is designed to covers the basics of safe and responsible bouldering. Topics include equipment, bouldering techniques, safety procedures, injury prevention, and training for competitive climbing.

PHED 1630 - Basic Caving

Credit 1.

This course is designed to introduce students to the basics of rope climbing and rappelling. Knots, types of rope, various climbing systems, rigging, rappelling, belaying, and climbing will be the focus of the course. Proper techniques will be emphasized with safety as the main priority.

PHED 1640 - Mountain Bike Skills

Credit 1.

This course is designed as an introduction to the basics of mountain biking. Students will be introduced to the basic equipment, techniques, terminology, and safety necessary to go mountain biking.

PHED 1650 - Outdoor Water Skills

Credit 1.

This course is designed for students to gain the knowledge and skills needed to safely enjoy a variety of water activities including but not limited to canoeing for recreation, relaxation, lifetime physical fitness or work.

PHED 2100 - Life Guard Training

Cross-listing: EXPW 2100

Credit 2.

The purpose of the American Red Cross Lifeguarding course is to provide entry-level lifeguard participants with the knowledge and skills to prevent, recognize and respond to aquatic emergencies and to provide care for breathing and cardiac emergencies, injuries and sudden illnesses until emergency medical services (EMS) personnel take over.

PHED 3050 - Water Safety Instructor's Course

Cross-listing: EXPW 3050

Credit 2.

Physical Education, Physical Activity Courses for Varsity Athletes and Cheerleaders

PHED 1870 - Varsity Softball

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1880 - Varsity Riflery

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1900 - Varsity Volleyball

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1910 - Varsity Football

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical

education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1920 - Varsity Basketball for Men

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1923 - Varsity Basketball for Women

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1930 - Varsity Baseball

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1940 - Varsity Tennis for Men

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1943 - Varsity Tennis for Women

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three

semesters of varsity sports can be taken without a repeat card.

PHED 1953 - Varsity Golf for Women

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1956 - Varsity Golf for Men

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1963 - Varsity Women's Cross Country

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1966 - Varsity Men's Cross Country

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1970 - Varsity Soccer

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1980 - Varsity Women's Track and Field

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

PHED 1990 - Varsity Cheerleading

Credit 1.

Only varsity athletes and cheerleaders may enroll in the varsity sports courses listed above. Those who are working toward licensure in Health and Physical education may use only one credit hour of the Varsity Sports series for licensure purposes. Only three semesters of varsity sports can be taken without a repeat card.

Physical Education, Short Term Courses

PHED 1520 - Canoe Camping

(fee)

Credit 1.

This course provides students with outdoor learning opportunities directly related to canoeing, kayaking and camping. Students will learn in a simulated environment and then go on an outdoor adventure incorporating canoeing and camping. Survival principles will also be studied.

PHED 1530 - Backpacking Camping

Credit 1.

This course provides students with outdoor learning opportunities through Backpacking Camping, and survival principles.

PHED 1550 - Advanced Open Water Scuba Diving

(fee)

Credit 1.

This course provides students with outdoor learning opportunities directly related to canoeing, kayaking and camping. Students will learn in a simulated environment and then go on an outdoor adventure incorporating canoeing and camping. Survival principles will also be studied.

PHED 1570 - Bicycle Touring

(fee)

Credit 1.

This course is designed as an introduction to the basics of Biking. Students will be introduced to the basic

equipment, techniques, terminology, and safety of biking.

Physics

PHYS 1020 - First-Year Connections

Cross-listing: MATH 1020

Rec. 2. Credit 1.

This course is intended as a bridge course for students entering TTU from high school. The course is designed to strengthen the student's connection to TTU, the College of Arts and Sciences, and the appropriate department (CSC, MATH, or PHYS) by focusing on the enhancement of skills needed for academic success. This course engages the student in meaningful academic and non-academic out-of-the-classroom activities, as learning occurs both in and out of the classroom. It emphasizes critical thinking, the formation of academic and social goals and support groups, and time-management and study skills.

PHYS 1100 - Acoustics of Music

Lec. 3. Credit 3.

Prerequisite: Background knowledge of high school Algebra and Geometry. Physical principles of sound as it relates to music, acoustics of musical instruments, auditorium acoustics and sound reinforcement, and sound recording and reproduction. This course will not count as part of a physics sequence.

PHYS 1137 - Frontiers of Physics

Rec. 1. Credit 1.

An overview of topics currently at the frontiers of physics.

PHYS 1310 - Concepts of Physics

Lec. 2. Lab. 3. Credit 3.

Selected topics from classical and modern physics with applications to familiar phenomena. This course will not count as part of a physics sequence.

Credit will not be given for both PHYS 1310 and any of PHYS 2010, PHYS 2020, PHYS 2109, PHYS 2110, PHYS 2111, PHYS 2119, PHYS 2120, PHYS 2121.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

PHYS 1901 - Special Topics in Physics and Physics Education

Lec. 0-3. Lab. 0-3. Credit 1-4.

Prerequisite: Consent of chair and instructor. (Up to six credits may be earned under this course title.) Topics

covered will be chosen on the basis of student interest and need.

PHYS 1902 - Special Topics in Physics and Physics Education

Lec. 0-3. Lab. 0-3. Credit 1-4.

Prerequisite: Consent of chair and instructor. (Up to six credits may be earned under this course title.) Topics covered will be chosen on the basis of student interest and need.

PHYS 1903 - Special Topics in Physics and Physics Education

Lec. 0-3. Lab. 0-3. Credit 1-4.

Prerequisite: Consent of chair and instructor. (Up to six credits may be earned under this course title.) Topics covered will be chosen on the basis of student interest and need.

PHYS 1904 - Special Topics in Physics and Physics Education

Lec. 0-3. Lab. 0-3. Credit 1-4.

Prerequisite: Consent of chair and instructor. (Up to six credits may be earned under this course title.) Topics covered will be chosen on the basis of student interest and need.

PHYS 2010 - Algebra-based Physics I

Lec. 3. Lab. 3. Credit 4.

Prerequisite: Background knowledge of high school Algebra and Geometry. Basic laws of classical mechanics and waves with elementary applications to familiar phenomena. A student may not earn credit in both PHYS 2010 and any of PHYS 1310, PHYS 2109, PHYS 2110.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

PHYS 2020 - Algebra-based Physics II

Lec. 3. Lab. 3. Credit 4.

Prerequisite: PHYS 2010. Basic laws of electromagnetism and light with elementary applications and brief introduction to modern physics. A student may not earn credit in both PHYS 2020 and any of PHYS 1310, PHYS 2119, PHYS 2120.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

PHYS 2109 - Calculus-based Physics I

Lec. 3. Credit 3.

Prerequisite: MATH 1920 (may be taken concurrently.) Introduction to classical mechanics and mechanical waves. A student may not earn credit in both PHYS 2109 and any of PHYS 1310, PHYS 2010, PHYS 2110.

PHYS 2110 - Calculus-based Physics I

Lec. 3. Lab. 3. Credit 4.

Prerequisite: MATH 1920 (may be taken concurrently.) Introduction to classical mechanics and mechanical waves, with lab. A student may not earn credit in both PHYS 2110 and any of PHYS 1310, PHYS 2010, PHYS 2109, PHYS 2111.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

PHYS 2111 - Calculus-based Physics Laboratory I

Lab. 3. Credit 1.

Prerequisite: PHYS 2109 (may be taken concurrently.) Experiments in classical mechanics and mechanical waves. A student may not earn credit in both PHYS 2111 and PHYS 2110 (with lab).

◆ Meets Tennessee Technological University and Tennessee Board of Regents minimum degree requirements.

PHYS 2112 - General Physics I Honors Recitation

Rec. 1. Credit 0.

Corequisite: PHYS 2109 or PHYS 2110. Selected topics to add depth to the understanding of material in PHYS 2109/PHYS 2110. Honors students can receive honors credit for PHYS 2109/PHYS 2110 by satisfactorily completing this course and obtaining a grade of A or B in PHYS 2109/PHYS 2110.

PHYS 2119 - Calculus-based Physics II

Lec. 3. Credit 3.

Prerequisite: PHYS 2109 or PHYS 2110, MATH 2110 or MATH 2120 (MATH 2110 or MATH 2120 may be taken concurrently.) Introduction to classical electromagnetism and optics. A student may not earn credit in both PHYS 2119 and any of PHYS 1310, PHYS 2020, PHYS 2120.

PHYS 2120 - Calculus-based Physics II

Lec. 3. Lab. 3. Credit 4.

Prerequisite: Either (i) PHYS 2109 and PHYS 2111 or (ii) PHYS 2110 (with lab); MATH 2110 or MATH 2120 (MATH 2110 or MATH 2120 may be taken

concurrently.) Introduction to classical electromagnetism and optics, with lab. A student may not earn credit in both PHYS 2120 and any of PHYS 1310, PHYS 2020, PHYS 2119, PHYS 2121.

◆ Meets Tennessee Technological University general education requirement (Natural Sciences).

PHYS 2121 - Calculus-based Physics Laboratory II

Lab. 3. Credit 1.

Prerequisite: PHYS 2110 (with lab) or PHYS 2111, PHYS 2119. (PHYS 2119 may be taken concurrently.) Experiments in classical electromagnetism and optics. A student may not earn credit in both PHYS 2121 and PHYS 2120 (with lab).

◆ Meets Tennessee Technological University and Tennessee Board of Regents minimum degree requirements.

PHYS 2420 - Modern Physics

Lec. 3. Credit 3.

Prerequisite: PHYS 2119 or PHYS 2120. Introduction to modern physics. Topics include special relativity, quantum theory of light, wave nature of matter, Bohr's theory of the atom, quantum mechanics in one dimension. Selected topics from atomic, molecular, solid state, nuclear, and particle physics.

PHYS 2920 - Mathematical Physics

Lec. 3. Credit 3.

Prerequisite: PHYS 2119 or PHYS 2120, MATH 2110. (PHYS 2119 or PHYS 2120 and MATH 2110 may be taken concurrently.) Mathematical methods for classical and modern physics. Selected topics from vector analysis, complex analysis, and vector spaces, with emphasis on applications to physical systems.

PHYS 3120 - Statistical Thermal Physics

Lec. 3. Credit 3.

Prerequisite: PHYS 2420, PHYS 2920, MATH 2120 and CSC 1310. Development of the laws of thermodynamics using statistical mechanics.

PHYS 3610 - Classical Mechanics

Lec. 3. Credit 3.

Prerequisite: PHYS 2920, MATH 2120 and CSC 1300. Theoretical development of classical mechanics, including Newtonian, Lagrangian, and Hamiltonian descriptions.

PHYS 3810 - Quantum Mechanics I

Lec. 3. Credit 3.

Prerequisite: PHYS 2420, PHYS 2920, MATH 4510 (5510), and CSC 1300. (MATH 4510 (5510) may be taken concurrently). Introduction to principles of quantum mechanics.

PHYS 3820 - Quantum Mechanics

Lec. 3. Credit 3.

Prerequisite: PHYS 3810. Application of quantum mechanics to simple systems.

PHYS 4120 - Advanced Modern Physics

Lec. 3. Credit 3.

Prerequisite: PHYS 3820. Applications of quantum mechanics to selected topics from atomic physics, molecular physics, solid state physics, nuclear and particle physics, and astrophysics.

PHYS 4130 - Computational Physics

Lec. 3. Credit 3.

Prerequisite: PHYS 3810 and CSC 1310. Computational techniques used in physics. Numerical techniques and computational algorithms. Random numbers and Monte Carlo techniques. Errors and uncertainties in computation. Applications of these techniques to classical and modern physics.

PHYS 4610 - Classical Electricity and Magnetism I

Lec. 3. Credit 3.

Prerequisite: PHYS 2119 or PHYS 2120, PHYS 2920, MATH 4510 (5510) and CSC 1300. (MATH 4510 (5510) may be taken concurrently.) Theory of electrostatics, electrodynamics, Maxwell's Equations, and boundary value problems.

PHYS 4620 - Classical Electricity and Magnetism II

Lec. 3. Credit 3.

Prerequisite: PHYS 4610 and PHYS 2420. (PHYS 2420 may be taken concurrently.) Applications of Maxwell's Equations to electromagnetic waves and other phenomena. Relativistic electrodynamics.

PHYS 4710 - Advanced Experimental Physics

Lab. 8. Credit 4.

Prerequisite: Consent of instructor. The student will perform selected experiments in classical and modern physics. Emphasis will be placed on computer-based data analysis and development of appropriate oral and written presentation techniques.

PHYS 4711 - Advanced Experimental Physics

Lab. 4. Credit 2.

Prerequisite: Consent of instructor. The student will perform selected experiments in classical and modern physics. Emphasis will be placed on computer-based data analysis and development of appropriate oral and written presentation techniques.

PHYS 4720 - Advanced Experimental Physics

Lab. 8. Credit 4.

Prerequisite: Consent of instructor. The student will perform selected experiments in classical and modern physics. Emphasis will be placed on computer-based data analysis and development of appropriate oral and written presentation techniques.

PHYS 4730 - Research Planning

Lab. 2. Credit 1.

Prerequisite: PHYS 4710 or PHYS 4711 (may be taken concurrently). The student will prepare and submit a detailed proposal for a research project to be done in a later semester in the course PHYS 4740. The project may be a continuation of one started in a previous research internship, in which case documentation from the mentor(s) of the internship must be provided.

PHYS 4740 - Research

Lab. 4. Credit 2.

Prerequisite: PHYS 4730. The student will execute a research project, write a paper about it, and make an oral presentation. The project may be a continuation of one started in a previous research internship, in which case documentation from the mentor(s) of the internship must be provided. All mentors will be involved in determining the final grade.

PHYS 4901 - Selected Topics in Physics

Lec. 1. Credit 1.

Prerequisite: Consent of instructor. Topics covered will be chosen on the basis of student interest and need. Course may be taken for credit more than once as long as the topic is different.

PHYS 4902 - Selected Topics in Physics

Lec. 2. Credit 2.

Prerequisite: Consent of instructor. Topics covered will be chosen on the basis of student interest and need. Course may be taken for credit more than once as long as the topic is different.

PHYS 4903 - Selected Topics in Physics

Lec. 3. Credit 3.

Prerequisite: Consent of instructor. Topics covered will be chosen on the basis of student interest and need. Course may be taken for credit more than once as long as the topic is different.

PHYS 5900 - Selected Topics in Physics

Credit 3, 6, 9.

Topics covered will be chosen on the basis of student interest and need.

Political Science

POLS 1030 - American Government

Lec. 3. Credit 3.

American systems of constitutional governance; emphasis on the major institutions and policies.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences). (POLS 1030, TTP Course)

POLS 1100 - Introduction to Political Science

Lec. 3. Credit 3.

Overview of political science and its subfields: American politics, comparative politics, political behavior, international relations and political theory. Focus on core questions in the discipline as well as the development of writing and critical thinking necessary for upper-division courses in the major.

POLS 2250 - Mock Trial

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing or consent of instructor. Introduces the art of persuasion in mock trial cases of civil or criminal law with an emphasis on rules of evidence and courtroom practices. Students will participate in a fall regional invitational competition with the possibility of advancement. May not be repeated for credit.

POLS 3000 - Data Analysis

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor; and POLS 1100 or consent of instructor. Computer aided data analysis. Emphasis on statistical analysis of political variables.

POLS 3102 - Model United Nations I

Lec. 2. Lab. 2. Credit 2.

Prerequisite: POLS 1030 or consent of the instructor. Analyze the structure and operations of the United Nations. Includes participation in an annual intercollegiate U.N. simulation. May be repeated as long as the topic is different. Maximum of 12 hours.

POLS 3110 - Introduction to Legal Reasoning and Analysis

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor; and POLS 1100 or consent of instructor. This course will provide an introduction to various forms of legal reasoning including the application of rules (syllogistic reasoning) and of precedents (analogical reasoning), arguing from circumstantial evidence (retroduction, or argument to the best explanation) and from authority (expert and eyewitness testimony), and using formal logic in the analysis of extended legal texts.

POLS 3120 - Legal Research and Writing

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor; and POLS 1100 or consent of instructor. This course is designed to teach students how to research a legal issue, analyze and synthesize appellate opinions, interpret state and federal statutes resulting in the creation of a persuasive legal memorandum. This course will also expose the students to various legal documents, their purpose, and the proper method of drafting them.

POLS 3130 - Moot Court

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor. Analysis of mock civil or criminal cases with briefing of twenty cases from provided table of authorities as well as submission of team case brief for scoring. Includes participation in an annual statewide Moot Court competition with oral argument. May be repeated as long as the topic is different. Maximum of 12 hours.

POLS 3200 - American Political Thought

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor; and POLS 1100 or consent of instructor. Survey of American political theory.

POLS 3300 - Introduction to Latin American Politics

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor;

and POLS 1100 or consent of instructor. Survey of selected Latin American political systems.

POLS 3310 - Politics of Developing Nations

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor; and POLS 1100 or consent of instructor. Focus on the internal politics of selected developing nations.

POLS 3320 - U.S. Policy Toward Latin America

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor; and POLS 1100 or consent of instructor. Focus on U.S. foreign policies that have an impact on Latin America and the Caribbean.

POLS 3330 - State and Local Government

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of instructor; and POLS 1100 or consent of instructor. Comparative study of state executives, legislatures, judiciaries, and policies; overview of counties and municipalities.

POLS 3400 - Gender and Politics

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of instructor; and POLS 1100 or consent of instructor. Role of gender in American politics and public policy, emphasizing the influence of political theories on individual world views.

POLS 3500 - Political Conspiracy Theories

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of instructor. Considers the relationship between governments and conspiracy theories, including the political, social and psychological factors that breed conspiracy theories and increase distrust of government institutions.

POLS 3610 - International Politics

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of instructor; and POLS 1100 or consent of instructor. Analysis of foreign policy conceptions and factors that affect relations among nations.

POLS 3650 - International Organizations

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor. Analysis of international organizations.

POLS 3670 - Foreign Policy

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of the instructor.
Development and the formulation of U.S. foreign policy.

POLS 3700 - The Legislative Process

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. The origins,
organization and functions of legislatures.

POLS 3710 - The American Executive

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. A comparative
study of governmental executives.

POLS 3810 - Judicial Process

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. Survey of American
state and federal court systems, using qualitative and
quantitative methods.

POLS 4100 - International Law

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. Analysis of the
nature, development, and concepts of international law.

POLS 4210 - American Political Parties

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. Study of political
parties, pressure groups, and public opinion.

POLS 4220 - Campaigns and Elections

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of the instructor.
Considers the practical aspects of campaigning for
public office on all levels of government including
strategy, financing, organization, research, and media.

POLS 4230 - Scandal and Corruption in U.S. Politics

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. This course will
introduce students to the phenomenon of political
corruption and its effects on American politics. Attention
will be paid to contemporary scandal and historical

examples, analyzing causes and consequences on both
involved politicians and the American public.

POLS 4250 - Political Communication

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. An analysis of the
relationship between the news media and politics. How
do news organizations determine what is
newsworthy? How do they report news? Do those
reports affect the political opinions of viewers? Do they
affect political outcomes? Students will learn theories
and debates that have emerged in top political science
journals within the past 15 years, ultimately gaining a
broad understanding of the effect of mass
communication on the political system.

POLS 4310 - Constitutional Law I: Struggle for Federal Powers and Accountability

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. Recommended
POLS 3810. Landmark cases in powers of the judiciary,
presidency, Congress, and states' rights, with a Moot
Court Term project.

POLS 4320 - Constitutional Law II: Civil Liberties and Civil Rights

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. Recommended
POLS 3810 and POLS 4310. Landmark cases in the
development of civil liberties and civil rights of individuals
with a Moot Court term project.

POLS 4400 - Political Satire

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. Study of political
satire from the ancients to postmodern influences with
an evaluation of the contemporary study of popular
culture.

POLS 4410 - Political Theory: Ancient and Medieval

Lec. 3. Credit 3.
Prerequisite: POLS 1030 or consent of instructor; and
POLS 1100 or consent of instructor. Analysis of political
thought from ancient Greece to 1500.

POLS 4420 - Political Theory: Early Modern

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of instructor; and POLS 1100 or consent of instructor. Analysis of political thought from 1500 toward the present.

POLS 4430 - Power and Privilege on the Screen

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of instructor; and POLS 1100 or consent of instructor. Evaluation of political film, documentaries and campaign ads using appropriate film theories, political texts and political writings.

POLS 4510 - Comparative Government: Europe

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of instructor; and POLS 1100 or consent of instructor. A comparison of the political systems of Europe.

POLS 4520 - Comparative Political Behavior

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor. Examines the individual's decision to participate in political life and the impact those decisions have on policy formation across the world's developed democracies.

POLS 4610 - Public Administration and Public Policies

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor. Theory and cases in public administrative organizations and controls.

POLS 4700 - Tennessee Trial Practices

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor. The theory and practice of conducting a trial in a Tennessee Court of law including evidence, ethics, procedure, and trial technique. Basic skills in trial advocacy including direct examination, cross examination, voir dire, opening statements, and closing arguments will also be covered.

POLS 4730 - First Amendment Law and Analysis

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor. An examination of speech, expression, association, the free exercise of religion, and the relationship between church and state as those concepts are understood in the context of the First Amendment and constitutional

law. Also included is the impact of new and emerging technology as it relates to these concepts.

POLS 4900 - Independent Study

Credit 3.

Prerequisite: Consent of the instructor. Supervised research and reading in any area where there is no appropriate course offering. May be taken twice, provided the topic is different.

POLS 4901 - Independent Study

Lec. 1. Credit 1.

Prerequisite: Consent of instructor. Supervised research and reading in any area where there is no appropriate course offering. May be taken twice, provided the topic is different.

POLS 4910 - Seminar in Public Law

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of the instructor. Advanced readings in human rights issues.

POLS 4911 - Special Projects

Credit 3.

Prerequisite: POLS 1030 or consent of instructor. Seminar or lecture course on a selected topic, issue, or interest areas in political science.

POLS 4912 - Special Projects

Credit 3.

Prerequisite: POLS 1030 or consent of instructor. Seminar or lecture course on a selected topic, issue, or interest areas in political science.

POLS 4913 - Special Projects

Credit 3.

Prerequisite: POLS 1030 or consent of instructor. Seminar or lecture course on a selected topic, issue, or interest areas in political science.

POLS 4914 - Special Projects

Credit 3.

Prerequisite: POLS 1030 or consent of instructor. Seminar or lecture course on a selected topic, issue, or interest areas in political science.

POLS 4915 - Special Projects

Credit 3.

Prerequisite: POLS 1030 or consent of instructor.

Seminar or lecture course on a selected topic, issue, or interest areas in political science.

POLS 4916 - Special Projects

Credit 3.

Prerequisite: POLS 1030 or consent of instructor.

Seminar or lecture course on a selected topic, issue, or interest areas in political science.

POLS 4917 - Special Projects

Credit 3.

Prerequisite: POLS 1030 or consent of instructor.

Seminar or lecture course on a selected topic, issue, or interest areas in political science.

POLS 4918 - Special Projects

Credit 3.

Prerequisite: POLS 1030 or consent of instructor.

Seminar or lecture course on a selected topic, issue, or interest areas in political science.

POLS 4919 - Special Projects

Credit 3.

Prerequisite: POLS 1030 or consent of instructor.

Seminar or lecture course on a selected topic, issue, or interest areas in political science.

POLS 4920 - Seminar in Comparative Politics

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of instructor; and POLS 1100 or consent of instructor. Advanced reading and research on selected topics in comparative politics.

POLS 4950 - Political Participation Internship

Credit 3-12.

Prerequisite: POLS 1030 and POLS 3330. Directed study and research while serving as an intern in a political party. (Note: No more than six hours may be counted as "approved courses" in major.)

POLS 4960 - Seminar in World Politics

Lec. 3. Credit 3.

Prerequisite: POLS 1030 or consent of instructor; and POLS 1100 or consent of instructor. Advanced reading and research on selected areas in international politics.

POLS 4990 - Internship

Credit 1-12.

Prerequisite: POLS 1030 or consent of the instructor. Directed study and research while serving as an intern in

appropriate governmental offices. (Note: Only six hours may be counted as "approved courses" in the major.)

Popular Culture

POPC 4010 (5010) - Topics

Lec. 1-3. Credit 1-3.

Special topics in popular culture.

POPC 4050 (5050) - Science Fiction and Fantasy

Lec. 3. Credit 3.

Analysis and discussion of themes, conventions, and stereotypes in short stories, novels, and films.

POPC 4060 (5060) - Detective Fiction

Lec. 3. Credit 3.

Private detectives, policemen, and spies in fiction.

Professional Communication

PC 2500 - Communicating in the Professions

Lec. 3. Credit 3.

Prerequisite: ENGL 1020 or concurrent enrollment in ENGL 1020. Overview of skills and principles related to oral communications in various professions.

◆ Meets Tennessee Technological University general education requirement (Communication/Oral Presentation).

PC 3250 - Professional Communication I

Cross-listing: ENGL 3250

Lec. 3. Credit 3.

Prerequisite: ENGL 1020. The preparation of effective technical and professional reports; the preparation and delivery of effective oral reports.

PC 3500 - Rhetoric and the Internet

Cross-listing: WEBD 3500

Lec. 3. Credit 3.

Prerequisite: ENGL 1020. Instruction in web site analysis and document design, including background in rhetorical theory and principles.

PC 3700 - Information Design in the Professions

Cross-listing: WEBD 3700

Lec. 3. Credit 3.

Prerequisite: ENGL 3250 or PC 3250. Practical experience in the field of information design: a specialized field in which complex information is presented clearly and efficiently to its intended audience. Students will study the design principles used to develop both print and web documents and learn

about the technologies used to develop and publish such documents.

PC 3750 - Ethics in the Professions

Lec. 3. Credit 3.

Prerequisite: ENGL 1010 and ENGL 1020. Overview of multidisciplinary ethical issues that affect all disciplines, including privacy, social responsibility, informed consent, morality, responsibility, and professional codes of ethics. The course focuses on case studies of ways these issues apply in various professions.

PC 4850 (5850) - Internship

Credit 3, 6, 9.

Prerequisite: PC 4940 (5940) or PC 4970 (5970). Part-time or full-time employment in a business, industrial, or institutional communications setting related to student academic and career goals. Includes a reflective component in the form of a paper or journal that connects the student's work with research covered in pre-requisite courses. Course may be repeated for up to a total of nine credit hours. Undergraduate students may not take more than nine credit hours of PC 4850 during their degree programs. Graduate students may take no more than six credit hours of PC 5850 during their degree programs.

PC 4940 (5940) - Technical Editing

Cross-listing: JOUR 4940 (5940)

Spring. Lec. 3. Credit 3.

Prerequisite: PC 3250 (ENGL 3250). Principles and practices of technical editing.

PC 4970 (5970) - Professional Communication II

Cross-listing: ENGL 4970 (5970)

Fall. Lec. 3. Credit 3.

Prerequisite: ENGL 3250 or PC 3250. A continuation of PC 3250 with emphasis on more complex reports.

PC 4990 - Business and Grant Proposal Writing

Lec. 3. Credit 3.

Prerequisite: ENGL 3250/PC 3250. Theory and practical experience developing business and grant proposals.

Professional Studies

PRST 4995 - Capstone Project

Cross-listing: (LIST 4995)

Lec. 3. Credit 3.

Prerequisite: Permission of instructor. Academic research or other creative activity resulting in a tangible product to demonstrate synthesis of student's coursework. This course is required for all PRST and LIST majors.

Psychology

PSY 1030 - Introduction to Psychology

Lec. 3. Credit 3.

Introduction to methods and findings of contemporary psychology. Emphasis on psychological basis for understanding human behavior. Consideration of maturation, learning, thinking, motivation, emotion, sensation, perception, and personality.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences). (PSYC 1030, TTP Course)

PSY 2110 - Psychology of Adjustment

Lec. 3. Credit 3.

Behavior and adjustment in modern society, maturing self- concept, adjustment to psychological stress, and prevention of maladjustment.

(PSYC 2110, TTP Course)

PSY 2130 - Life Span Development Psychology

Lec. 3. Credit 3.

Developmental aspects of psychological functioning from the prenatal period to adulthood with emphasis on individual differences.

PSY 3000 - Problem Solving

Lec. 3. Credit 3.

Introduction to concepts and methods used in problem-solving.

PSY 3010 - Statistics and Experimental Design

Lec. 2. Lab. 2. Credit 3.

Prerequisite: PSY 1030, 3 additional PSY credit hours; a grade of B or higher in MATH 1530 or MATH 1130 or MATH 1630, or MATH 1710, or MATH 1720, or MATH 1730, or MATH 1830, or MATH 1910; 45 hours of completed course work and be a psychology major. Corequisite: PSY 3020. Fundamental statistics for the behavioral sciences, descriptive uses, probability, one-way, factorial designs, repeated measures and split-plot designs, bivariate correlation and regression, and non-parametrics.

PSY 3020 - Information Literacy in Psychology

Lec. 3. Credit 3.

Prerequisite: PSY 1030 and 3 additional PSY credits. The course emphasizes information literacy in reading, evaluating, and summarizing scientific literature in

Psychology. The course includes exposure to scientific writing (APA format) and basic research concepts and terminology in Psychology.

PSY 3030 - Careers in Psychology

Lec. 3. Credit 3.

The course explores the various career paths that can be taken with a degree in psychology, which may include clinical/counseling, cognitive neuroscience, industrial/organizational, healthcare informatics, educational research, and other career applications.

PSY 3040 - Positive Psychology: The Science of Well-being

Lec. 3. Credit 3.

Prerequisite: Junior standing required. The purpose of this course is to examine the fundamentals of positive psychology. Example topics discussed: Happiness, Courage, Optimism, Empathy.

PSY 3110 - Experimental Psychology

Lec. 3. Lab. 2. Credit 4.

Prerequisite: Minimum grade of C in PSY 3010. Methods and techniques of research in general experimental psychology. Emphasis on design, data collection, analysis, and report writing.

PSY 3140 - Experimental Social Psychology

Lec. 2. Lab. 2. Credit 3.

Prerequisite: PSY 3110. Experimental testing of theories and models, experimental social designs and problems, and assigned and original laboratory projects.

PSY 3150 - Cognitive Psychology

Lec. 2. Lab. 2. Credit 3.

Prerequisite: PSY 1030. Experimental methods used in the study of memory, thinking and cognition.

PSY 3160 - Applied Research Methods

Lec. 2. Lab. 2. Credit 3.

Prerequisite: PSY 3010. Examination of methods used to research psychological questions of an applied nature in specialties such as industrial, health, consumer, and community psychology. Topics include survey, evaluation, and quasi-experimental research methods.

PSY 3300 - Introduction to Social Psychology

Lec. 3. Credit 3.

Prerequisite: PSY 1030. Introduction to methods in social psychology and processes of social influence.

PSY 3400 - Industrial Psychology

Lec. 3. Credit 3.

Introduction to the areas of employee selection, training, performance appraisal, theories, work motivation, and development.

PSY 3410 - Group Dynamics

Lec. 3. Credit 3.

Group development, the individual in group processes, interaction, leadership, and decision-making.

PSY 4050 (5050) - Learning and Cognition

Lec. 3. Credit 3.

Prerequisite: PSY 1030. Theory, research and applications in human learning, memory and cognitive processes. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4100 (5100) - Child Psychology

Lec. 3. Credit 3.

Prerequisite: PSY 1030 and PSY 2130. Hereditary and environmental influence on physical and psychological growth. Cognitive, affective and language development of infant and child with an emphasis on disorders and problems in development. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4130 (5130) - Brain and Behavior

Lec. 3. Credit 3.

Prerequisite: PSY 1030 and 3 additional PSY credits. Biological approach to understanding behavior. Students will focus on the anatomy and physiology of the nervous system in reference to behavior, perception, mental disorders, and drug action. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4140 (5140) - Health Psychology

Lec. 2. Lab. 2. Credit 3.

Prerequisite: PSY 3110. Biopsychosocial approach to examining how stress, personality and lifestyle are related to physical health. Students will experientially explore a variety of coping strategies and relaxation techniques geared toward self-assessment and understanding. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4150 (5150) - Psychology of Personality

Lec. 3. Credit 3.

Prerequisite: PSY 1030. Application of psychological principles to an understanding of personality, development, and interpersonal adjustments. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4160 (5160) - Abnormal Psychology

Lec. 3. Credit 3.

Prerequisite: PSY 1030 and 3 additional PSY credits. Nature of abnormal behavior, etiology, symptomatology and treatment. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4200 (5200) - Adolescent Psychology

Lec. 3. Credit 3.

Prerequisite: PSY 1030. Origin and principles of behavior with emphasis on educational problems in guiding growth and development in adolescents. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4250 (5250) - Introduction to Psychological Testing

Lec. 3. Credit 3.

Prerequisite: PSY 1030. Basic concepts in psychological testing, interpreting test scores, and types of standardized tests. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4300 (5300) - Adult Psychology

Lec. 3. Credit 3.

Prerequisite: PSY 1030. Physical, cognitive, and psychological development in young adulthood, middle age, and old age. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4320 (5320) - Introduction to Therapeutic Techniques

Lec. 3. Credit 3.

Prerequisite: PSY 4150 (5150) or PSY 4160 (5160). An introduction to various therapeutic techniques including analytic, nondirective, in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4400 (5400) - Psychopharmacology

Lec. 3. Credit 3.

Prerequisite: PSY 1030. An introduction to the psychological and physiological impact of drugs. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4600 (5600) - Microcomputers in Psychological Research

Lec. 1. Lab. 4. Credit 3.

Prerequisite: PSY 1030. Introduction to the use of computers in psychological research. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4800 (5800) - History of Psychology

Lec. 3. Credit 3.

Prerequisite: PSY 1030. Theoretical systems, experiments and prominent figures in the development of modern psychology. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4810 (5810) - Concepts of Gerontology

Cross-listing: NURS 4810, SOC 4810

Lec. 3. Credit 3.

Prerequisite: PSY 2130 or PSY 3300 or SOC 1010. Physical and psychosocial aging processes. Issues in the care of the senior adult.

PSY 4903 (5903) - Special Topics

Credit 3.

Prerequisite: Junior standing. Concentration on a special topic in psychology. Course may be repeated if topic is different. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4913 (5913) - Special Topics

Credit 3.

Prerequisite: Junior standing. Concentration on a special topic in psychology. Course may be repeated if topic is different. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4921 (5920) - Special Topics

Credit 1, 2, 3.

Concentration on a special topic in psychology. Course may be repeated if topic is different. Junior standing required. Students enrolled in the 5000-level course will

be required to complete additional work as stated in the syllabus.

PSY 4922 - Special Topics

Credit 1, 2, 3.

Concentration on a special topic in psychology. Course may be repeated if topic is different. Junior standing required. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4923 - Special Topics

Credit 1, 2, 3.

Concentration on a special topic in psychology. Course may be repeated if topic is different. Junior standing required. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus.

PSY 4930 - Senior Thesis

Sem. 3. Credit 3.

Prerequisite: Minimum grade of C in PSY 3110.

Capstone experience that requires students to conduct an original research project which ties together previously learned statistical methods, research skills, and oral/written communication skills. Students complete all work through the presentation of the research proposal.

PSY 4931 - Senior Thesis

Sem. 3. Credit 3.

Prerequisite: PSY 4930. Capstone experience that requires students to conduct an original research project which ties together previously learned statistical methods, research skills, and oral/written communication skills. Students complete the data collection, statistical analyses, and final manuscript.

PSY 4940 - Field Experience in Psychology

Credit 1-3.

Prerequisite: Junior standing required. Supervised application of Psychology in educational, therapeutic, or commercial institutions or research. Student is required to identify the location, establish an agreement with an individual willing to supervise the experience from the location and complete all necessary documentation from faculty instructor of record. May be repeated up to 6 credit hours as long as each practicum assignment is substantially different.

Reading

READ 3311 - Literacy I

Lec. 7. Credit 7.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: FOED 3810. This course is an integration of concepts fundamental to the development of literacy from birth through middle grades. It includes a study of children's literature, language development and communication skills, language arts, and the assessment and selection of appropriate instructional strategies based upon student need. A minimum grade of B is required to meet requirements for licensure candidates.

READ 3312 - Literacy II - Middle School Reading Program

Lec. 7. Credit 7.

Prerequisite: Full admission to the Teacher Education Program. This course is an integration of concepts fundamental to the development of literacy from birth through middle grades. It includes a study of language development and communication skills, language arts, content area reading, and the assessment and selection of appropriate instructional strategies based upon student need.

READ 3313 - Literacy for Special Populations

Lec. 5. Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: FOED 3810. This course is an integration of the five main components of reading plus writing which are fundamental to the development of literacy from birth through middle grades. It includes a study of language development and communication skills, language arts, content area reading, and the assessment and selection of appropriate instructional strategies based upon student need.

READ 3350 - Teaching Reading in the Content Areas

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Emphasis on skills needed for content area reading and selection of materials and appropriate techniques for diverse learners.

READ 4020 (5020) - Storytelling and Traditional Literature

Cross-listing: LSCI 4020 (5020).

Lec. 3. Credit 3.

Storytelling techniques and literature presentation through storytelling.

READ 4411 (5411) - The Reading-Writing Connection: Secondary

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: READ 3350. Explores the connection between the reading and writing process as a means of mutual improvement.

READ 4540 (5540) - Multiethnic Literature for Infants, Toddlers and Preschoolers

Cross-listing: LSCI 4540 (5540)

Lec. 1. Credit 1.

Introduction to preschool trade books and related materials reflecting an understanding of multiethnicity.

READ 4550 (5550) - Multiethnic Literature for Children

Cross-listing: LSCI 4550 (5550)

Lec. 1. Credit 1.

Introduction to children's trade books and related materials reflecting an understanding of multiethnicity.

READ 4560 (5560) - Multiethnic Literature for Adolescents and Adults

Cross-listing: LSCI 4560 (5560)

Lec. 1. Credit 1.

Introduction to adolescent and adult trade books and related materials reflecting an understanding of multiethnicity.

READ 4570 (5570) - Young Adult Literature

Cross-listing: LSCI 4570 (5570)

Lec. 3. Credit 3.

Survey of books and materials for middle level, high school students, and adults focusing on techniques to assist in reading these materials with understanding.

Religious Studies

RELS 2010 - Introduction to Religious Studies

Lec. 3. Credit 3.

Introduction to the academic study of religion and the field of Religious Studies. Students will explore basic questions related to religion in a cultural, historical and personal context. In addition, the course will offer an overview of five major world religions: Buddhism, Christianity, Hinduism, Islam, and Judaism.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

RELS 3300 - Martin Luther King Jr.: Rhetoric & Theology of Non-Violent Social Change

Lec. 3. Credit 3.

This course will take an interdisciplinary approach to explore the lasting legacy of Martin Luther King Jr.

Special emphasis will be given to the role of religion in the Non-Violent Social Change movement, and to the philosophical and theological training that influenced Dr. King's thinking.

RELS 4041 - Directed Study

Indep. St. 1. Credit 1.

Individualized directed study with a faculty mentor. Students may take up to 6 hours of Directed Study with different topics.

RELS 4042 - Directed Study

Indep. St. 2. Credit 2.

Individualized directed study with a faculty mentor. Students may take up to 6 hours of Directed Study with different topics.

RELS 4043 - Directed Study

Indep. St. 3. Credit 3.

Individualized directed study with a faculty mentor. Students may take up to 6 hours of Directed Study with different topics.

RELS 4091-4099 - Special Topics in Religious Studies

Lec. 3. Credit 3.

Prerequisite: Permission of instructor. Academic research or other creative activity resulting in a tangible product to demonstrate synthesis of student's coursework. This course is required for all PRST and LIST majors.

No more than 9 hours of REL 4091-4099 may be used for degree.

RELS 4110 - Jesus in History, Faith, and Tradition

Lec. 3. Credit 3.

Prerequisite: RELS 2010, or permission of the instructor. The goal of the course is to explore the life, teachings, and influence of Jesus of Nazareth. Special emphasis will be given to various sources of information regarding his life and teachings.

RELS 4300 - New Religious Movements

Lec. 3. Credit 3.

Prerequisite: RELS 2010 or permission of instructor. The purpose of this course is to introduce students to the historical and cultural contexts of New Religious Movements (commonly known as cults or sects) primarily in the United States, from the Second Great Awakening forward. The course will develop students'

understanding of Religious Studies as a discipline, and encourage individual inquiry into Religious Studies topics.

Secondary Education

SEED 4120 (5120) - Materials and Methods of Teaching English

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program; READ 4411 (5411); and COMM 2025 or PC 2500. Corequisite: FOED 3820. Prerequisite or corequisite: Any two of the following: ENGL 3810, ENGL 3820, ENGL 3910, or ENGL 3920; and READ 3350. Principles, objectives, techniques, and evaluation in secondary school teaching of English. A minimum grade of B is required to meet degree requirements for licensure candidates.

SEED 4121 (5121) - Materials and Methods of Teaching Career Technical Education

Lec. 3. Credit 3.

Principles, objectives, techniques, and evaluation in secondary school teaching of career technical education. A minimum grade of B is required to meet degree requirements for licensure candidates.

SEED 4122 (5122) - Materials and Methods of Teaching Mathematics

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: FOED 3820. Principles, objectives, techniques, and evaluation in secondary school teaching of Mathematics. A minimum grade of B is required to meet degree requirements for licensure candidates.

SEED 4123 (5123) - Materials and Methods of Teaching the Sciences

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: FOED 3820. Principles, objectives, techniques, and evaluation in secondary school teaching of the sciences. A minimum grade of B is required to meet degree requirements for licensure candidates.

SEED 4124 (5124) - Materials and Methods of Teaching Social Studies

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: FOED 3820. Principles,

objectives, techniques, and evaluation in secondary school teaching of Social Studies. A minimum grade of B is required to meet degree requirements for licensure candidates.

SEED 4125 (5125) - Materials and Methods of Teaching Foreign Language

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: FOED 3800 or CUED 6800. Principles, objectives, techniques, evaluation in secondary school teaching of Foreign Languages. Students enrolled in the 5000-level course will be required to complete additional work as stated in the syllabus. A minimum grade of B is required to meet degree requirements for licensure candidates.

SEED 4322 (5322) - Teaching Algebra in Middle/High School

Lec. 3. Credit 3.

Topics in Algebra, philosophy, new trends, and methods of teaching Algebra in Grades 5-12.

SEED 4422 (5422) - Teaching Secondary Mathematics Using Technology

Lec. 3. Credit 3.

Exploring technologies specific to Mathematics teaching and appropriate applications of these technologies in the classroom.

SEED 4870 - Student Teaching I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SEED 4880 and SEED 4890. Activities directly related to teaching performance, planning and presenting lessons, directing study, and classroom management. A grade of B is required to meet degree requirements.

SEED 4871 - Residency I

Credit 5.

Prerequisite: FOED 3820 grade B or better, full admission to the Teacher Education Program and full admission to Residency I. Corequisite: SEED 4872. Performance based clinical experience in authentic settings involving planning appropriate instruction based on student's needs, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A minimum grade of B is required to meet degree requirements.

SEED 4872 - Professional Seminar I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SEED 4871. Seminar for Residency I candidates to develop curriculum, identify effective instructional strategies, and implement appropriate assessment methods to support and meet the needs of all learners. A minimum grade of B is required to meet requirements for licensure candidates.

SEED 4880 - Student Teaching II

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SEED 4870 and SEED 4890. Continuation of SEED 4870 in a different setting. A grade of B is required to meet degree requirements.

SEED 4881 - Residency II

Credit 10.

Prerequisite: SEED 4871 with a grade of B; full admission to the Teacher Education Program. Corequisite: SEED 4882. Performance based full time clinical experience in authentic settings involving planning appropriate instruction based on student's needs, demonstrating effective instructional strategies, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A minimum grade of B is required to meet degree requirements.

SEED 4882 - Professional Seminar II

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SEED 4881. Seminar for Residency II candidates supporting professional development in areas of planning, assessment, instruction, classroom management, communication and reflection.

SEED 4890 - Seminar: Education and Society

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SEED 4870 and SEED 4880. Seminar on issues related to the interrelationships among school, culture, and society; a historical, philosophical, and sociological analysis.

Sociology

SOC 1010 - Introduction to Sociology

Lec. 3. Credit 3.

Fundamental concepts and basic principles underlying human social relations.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences). (SOCI 1010, TTP Course)

SOC 1020 - An Orientation to Sociology

Lec. 2. Credit 1.

A course required for all Sociology majors, designed to assist the student in acquiring basic knowledge and skills necessary to be a successful sociology major. Additional focus upon personal and academic adjustments to college in general. May be taken at the same time as SOC 1010. Must be taken at first opportunity after declaration of sociology as a major.

SOC 1650 - Social Problems

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Contemporary social problems.

(SOCI 1020, TTP Course)

SOC 2100 - Cultural Ecology

Cross-listing: ANTH 2100

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Interaction between human cultural systems and the physical environment in prehistoric through modern times.

SOC 2110 - Social Class and Inequality in America

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Current and comprehensive description of the social class structure, socioeconomic inequality, and related politics of American society.

SOC 2630 - Marriage and Family Relations

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. A sociological approach to marriage and family living, dating, male-female roles, mate selection, marital adjustment, parenthood, widowhood, divorce, and remarriage.

(SOCI 2010, TTP Course)

SOC 2660 - Criminology

Cross-listing: CJ 2660

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing. Crime, the criminal, and society's responses to the behavior.

SOC 2840 - The Aged in American Society

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Analysis of social, psychological, and economic problems in aging.

SOC 3100 - Sociological Theory

Lec. 3. Credit 3.

Prerequisite: SOC 1010. Survey of the development of major schools of thought in modern sociology with instruction and evaluation in oral presentations.

SOC 3150 - Social Psychology

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. This course will examine how individuals shape and are shaped by their social situations. There will be a particular emphasis on the symbolic interaction perspective with the goal of helping students better understand their identities and social interactions.

SOC 3200 - Sociology of Sex and Gender

Lec. 3. Credit 3.

Prerequisite: SOC 1010. A sociological perspective on the development and operation of gender with emphasis on social structure and culture.

SOC 3300 - Occupational Sociology

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. The social dimensions of occupations (both legitimate and deviant) with an emphasis on the troubles and tensions workers encounter.

SOC 3550 - Applied Sociology

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Applications of sociological knowledge and its relation to the context of interaction between sociologists and policy-makers.

SOC 3600 - Environmental Sociology

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Explores the relationship between society and

the physical environment with emphasis on environmental usage patterns, environmental justice issues, and the causes and consequences of environmental pollution and over-population problems, with an orientation toward possible solutions of these problems.

SOC 3620 - Victimology

Cross-listing: (CJ)

Lec. Credit 3.

Prerequisite: SOC 1010 or CJ 2660. Students must be majoring on SOC, SOC/CJ/, or SOC/SW. Non-majors may be admitted by consent of instructor. This course provides an in-depth analysis of the victims of criminal activity including: the various challenges victims face as they seek justice through the criminal justice system; the risk factors and probability of experiencing crime; and, specific theoretical perspectives that center on the victims of crime. Topics such as restorative justice and victim blaming are also explored.

SOC 3640 - Cybercrime

Cross-listing: CJ 3640.

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or CJ 2660 or consent of the instructor. This course provides a broad introduction into the world of cybercrime. Cybercrime includes various forms of criminal activity and is broadly defined as the destruction, theft, or unauthorized or illegal use, modification, or copying of information, programs, services, equipment, or communication networks.

SOC 3650 - Youth and Society

Cross-listing: CJ 3650

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing and SOC 1010. The study of the causes of juvenile misconduct, possible responses to the problem, and the system of juvenile justice.

SOC 3710 - Urban Sociology

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. History of urbanization. Analysis of contemporary urban society and its social problems.

SOC 3720 - Rural Sociology

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Development of rural society, its relationship to urban society, and contemporary rural social problems.

SOC 3730 - Technology and Society

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Relationships of different types of technologies to different types of social and cultural systems.

SOC 3900 - Introduction to Social Research

Cross-listing: SW 3900

Lec. 3. Credit 3.

Prerequisite: SOC 1010 and three hours of Sociology or consent of instructor. Methods of sociological research including considerations of research design, strategies, techniques and procedures.

SOC 3910 - Social Science Statistical Analysis

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or CJ 2660 or SW 1800.

Introduction to basic statistics and their uses in the social sciences.

SOC 3911 - Introduction to Crime Analysis

Cross-listing: (CJ)

Lec. 3. Credit 3.

Prerequisite: SOC 1010 and SOC 2660. Students must be majoring in SOC, SOC/CJ, or SOC/SW. Non-majors may be admitted by consent of instructor. This course provides students with instruction in the use of Microsoft Excel with applications for crime analysis.

SOC 3920 - Sociological Applications Using SPSS

Lec. 3. Credit 3.

Prerequisite: SOC 3910. This course deals with applications of the Statistical Package for the Social Sciences (SPSS) including: direct data input, data importation from other sources (i.e. national data base and Excel spreadsheets), and using SPSS to perform and interpret a wide variety of commonly used statistical applications in Sociology ranging from descriptive statistics to multivariate analysis.

SOC 4010 (5010) - Organized Crime

Cross-listing: CJ 4010 (5010)

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing and SOC 1010 or CJ 2660 or SOC 2660. Organized crime in America as a product of legal, historical, cultural, and economic forces.

SOC 4040 (5040) - Law and Culture

Cross-listing: ANTH 4040 (5040), CJ 4040 (5040)

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. A comparative cross-cultural analysis of primitive, traditional, and modern attitudes toward law, social control, punishment, and individual responsibility.

SOC 4050 - Crime and Media

Cross-listing: CJ

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 2660/CJ 2660 or consent of the instructor. An analysis of crimes, criminals, and punishment as they appear in American popular culture and various media.

SOC 4080 (5080) - Sociology of Appalachia

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. An exploration of the people, culture, and political economy of Appalachia.

SOC 4090 (5090) - Cross Cultural Communications and Cultural Diversity

Lec. 3. Credit 3.

An examination of the socio-cultural context of communication with emphasis upon enhancing communication skills across cultures.

SOC 4120 (5120) - Sociology of Death and Dying

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. The social and cultural dimensions of death and dying in American society with emphasis on the meaning of death, the death industry, the social context of death and dying, and bereavement.

SOC 4210 (5210) - Race, Ethnicity and Multiculturalism

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Ethnic and cultural variations in the U.S. and similar mass societies. Emphasis on economic, political, and social relationships between ethnic groups.

SOC 4220 (5220) - Sociology of Mass Communications

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Historical and organizational analysis of various mass media and their content. Social issues and the mass media.

SOC 4320 (5320) - Sociology of Religion

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Cross-cultural analysis of religion as a social factor at the societal, organizational, and personality systems levels.

SOC 4330 (5330) - Population and Social Process

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Sociological analysis of the interrelationship between particular population characteristics and patterns of social organization.

SOC 4350 - White Collar Crime

Cross-listing: CJ 4350

Lec. 3. Credit 3.

Prerequisite: SOC 1010, or SOC 2660, or consent of instructor. Criminological and sociological examination of offenders and victims of crimes in the world of business and government committed in the course of legitimate occupations.

SOC 4430 (5430) - People in Organizations

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Analysis of the structures and processes of large bureaucratic organizations with emphasis on individuals' relationships to them.

SOC 4500 (5500) - Sociology of Alcohol Abuse and Alcoholism

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Sociological analysis of alcohol abuse and alcoholism, issues in prevention and rehabilitation, and implications for education.

SOC 4510 (5510) - Social Deviance

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Examination of various groups who are identified as deviant due to their unacceptable behavior and relative powerlessness.

SOC 4515 - Sexual Offenses and Offenders

Cross-listing: CJ 4515

Lec. 3. Credit 3.

Prerequisite: SOC 1010. This course provides a broad introduction into the world of sexual offenses. Accordingly, this course will provide information on survivors of these crimes, perpetrators, as well as relevant sociological factors. An emphasis will be placed on understanding the perpetrator specifically.

SOC 4520 - Domestic Violence

Cross-listing: CJ 4520.

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or CJ 2660 or consent of

instructor. This course investigates all forms of domestic violence from a sociological perspective including theoretical explanations, prevalence, risk factors, dynamics of prevention, and intervention.

SOC 4530 - Sociology of Murder

Cross-listing: CJ 4530.

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or CJ 2660 or consent of instructor. This course provides an analytical study of murder and violence in the United States. As such, course topics include: different types of homicide, offender characteristics, etiological considerations of becoming an offender or victim, the role of social profiling in the investigation of various types of murder, theoretical approaches to the study of murder, and patterns and sources of violence. Taking into account the grisly topic, students that are distributed by particularly heinous crimes should avoid enrolling into this course.

SOC 4610 (5610) - Contemporary American Family

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Models of family organization, variations in the institutional pattern, kinship, and basic social trends affecting the family.

SOC 4660 (5660) - Corrections

Cross-listing: CJ 4660 (5660)

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing and SOC 1010 or CJ 2660 or SOC 2660 or SW 1800. Correctional services, practices, and issues with particular attention to the maximum-security adult institution.

SOC 4810 - Concepts of Gerontology

Cross-listing: NURS 4810, PSY 4810 (5810)

Lec. 3. Credit 3.

Prerequisite: PSY 2130 or PSY 3300 or SOC 1010. Physical and psychosocial aging processes. Issues in the care of the senior adult.

SOC 4830 (5830) - Medical Sociology

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Examination of the significance of the complex relationship between attitudes, beliefs relating to the underlying causes of disease, the level of health characteristics, appropriate treatment practices, and the role of the healer in various groups and societies.

SOC 4860 (5860) - Social Movements and Social Change

Lec. 3. Credit 3.

Prerequisite: SOC 1010 or SOC 1100 or consent of instructor. Analysis of social movements and other kinds of planned and unplanned change in society.

SOC 4900 (5900) - Internship

Cross-listing: CJ 4900 (5900), SW 4900 (5900)

Credit 3.

Prerequisite: Nine hours of Sociology. See instructor prior to enrolling. Students are placed with and work in a public or private agency which is compatible with their interests. (Students may take a maximum of two internships for up to a total of 6 hours of Internship. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements with any additional hours counting as upper division general elective hours.)

SOC 4901 - Internship

Credit 3.

Prerequisite: Nine hours of sociology. See instructor prior to enrolling. Students are placed with and work in a public or private agency which is compatible with their interests. (Students may take a maximum of two internships for up to a total of 6 hours of Internship. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements with any additional hours counting as upper division general elective hours.)

SOC 4911 - Geographic Information Applications in the Social Sciences

Lec. 3. Credit 3.

Prerequisite: SOC 1010. This course provides a broad introduction into the world of geographic information systems (GIS) and their applicability to the social sciences--particularly criminal justice. Students are required to complete a major research project using GIS applications and to present the results.

SOC 4915 (5915) - Internship

Cross-listing: CJ 4915, SW 4915

Credit 6.

Prerequisite: Nine hours of Sociology. Six-hour internships are only available for internships that offer special opportunities that are not available in a 3-hour internship. See instructor prior to enrolling to determine if an available internship opportunity qualifies for 6 hours of credit.

SOC 4920 (5920) - Data Analysis and Management

Lec. 3. Credit 3.

Prerequisite: SOC 3900 and SOC 3910. The techniques of management and analysis of quantitative social science data from primary and secondary sources.

SOC 4925 (5925) - Internship

Cross-listing: CJ 4925, SW 4925

Credit 9.

Prerequisite: Nine hours of Sociology. Nine-hour internships are only available for internships that offer special opportunities that are not available in a 3- or 6-hour internship. The great majority of these will be summer internships that require the intern to work a 40-hour week. See instructor prior to enrolling to determine if an available internship opportunity qualifies for 9 hours of credit.

SOC 4930 (5930) - Field Research Methods

Lec. 3. Credit 3.

Prerequisite: SOC 3900 or consent of instructor. An in-depth examination and direct involvement with various qualitative research tools and techniques used by sociologists.

SOC 4940 - Independent Study

Cross-listing: CJ 4940, SW 4940

Credit 1.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4941 - Independent Study

Cross-listing: CJ 4941, SW 4941

Credit 1.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4948 - Independent Study

Cross-listing: CJ 4948, SW 4948

Credit 2.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4949 - Independent Study

Cross-listing: CJ 4949, SW 4949

Credit 2.

Prerequisite: Consent of instructor. Allows the student to

undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4950 (5950) - Independent Study

Cross-listing: CJ 4950, SW 4950 (5950)

Credit 3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4951 - Independent Study

Cross-listing: CJ 4951, SW 4951

Credit 3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4970 (5970) - Special Topics

Cross-listing: CJ 4970 (5970), SW 4970

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4971 - Special Topics

Cross-listing: CJ 4971, SW 4971

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4972 - Special Topics

Cross-listing: CJ 4972, SW 4972

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a

single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4973 - Special Topics

Cross-listing: CJ 4973, SW 4973

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4974 - Special Topics

Cross-listing: CJ 4974, SW 4974

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4975 - Special Topics

Cross-listing: CJ 4975, SW 4975

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4976 - Special Topics

Cross-listing: CJ 4976, SW 4976

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4977 - Special Topics

Cross-listing: CJ 4977, SW 4977

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4978 - Special Topics

Cross-listing: CJ 4978, SW 4978

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture

course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4979 - Special Topics

Cross-listing: CJ 4979, SW 4979

Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4980 (5980) - Special Topics

Cross-listing: CJ 4980 (5980), SW 4980.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4981 - Special Topics

Cross-listing: CJ 4981, SW 4981.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4982 - Special Topics

Cross-listing: CJ 4982, SW 4982.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4983 - Special Topics

Cross-listing: CJ 4983, SW 4983.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4984 - Special Topics

Cross-listing: CJ 4984, SW 4984.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4985 - Special Topics

Cross-listing: CJ 4985, SW 4985.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4986 - Special Topics

Cross-listing: CJ 4986, SW 4986.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4987 - Special Topics

Cross-listing: CJ 4987, SW 4987.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4988 - Special Topics

Cross-listing: CJ 4988, SW 4988.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4989 - Special Topics

Cross-listing: CJ 4989, SW 4989.

Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a

single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4990 (5990) - Special Topics

Cross-listing: CJ 4990, SW 4990.

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4991 - Special Topics

Cross-listing: CJ 4991, SW 4991.

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4992 - Special Topics

Cross-listing: CJ 4992, SW 4992.

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4993 - Special Topics

Cross-listing: CJ 4993, SW 4993.

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4994 - Special Topics

Cross-listing: CJ 4994, SW 4994.

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4995 - Special Topics

Cross-listing: CJ 4995, SW 4995.

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture

course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4996 - Special Topics

Cross-listing: CJ 4996, SW 4996.

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4997 - Special Topics

Cross-listing: CJ 4997, SW 4997.

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4998 - Special Topics

Cross-listing: CJ 4998, SW 4998.

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for upper division credit to fulfill major or minor requirements.

SOC 4999 - Senior Seminar

Lec. 3. Credit 3.

Prerequisite: SOC 3100, SOC 3910, SOC 4920 (5920), SOC 4930 (5930), or by permission of instructor. Capstone course designed to be taken by sociology majors in the senior year. Course reviews major areas in the field of sociology in preparation for the Major Field Exam and in preparation for professional life.

Social Work

SW 1800 - Introduction to Social Work

Lec. 3. Credit 3.

An introduction to the organization and structure of professional social services including major interventive methods.

(SWRK 2010, TTP Course)

SW 3900 - Introduction to Social Research

Cross-listing: SOC 3900

Lec. 3. Credit 3.

Prerequisite: SOC 1010 and three hours of Sociology or consent of instructor. Methods of sociological research, including considerations of research design, strategies, techniques, and procedures.

SW 4100 (5100) - Probation and Parole

Cross-listing: CJ 4100 (5100)

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing and SOC 1010 or CJ 2660 or SOC 2660 or SW 1800. Probation and parole services with special attention to current practices and issues.

SW 4120 (5120) - Case Management

Cross-listing: CJ 4120 (5120)

Lec. 3. Credit 3.

Prerequisite: Sophomore Standing and SOC 1010 or CJ 2660 or SOC 2660 or SW 1800. Individual and group methods used in counseling and treating offenders in both the institutional and community setting.

SW 4900 (5900) - Internship

Cross-listing: SOC 4900 (5900), CJ 4900 (5900)

Credit 3.

Prerequisite: Nine hours of Sociology. See instructor prior to enrolling. Students are placed with and work in a public or private agency which is compatible with their interests. (May be taken once for Upper Division credit to fulfill major or minor requirements and a second time as a general elective.)

SW 4915 - Internship

Credit 6

Prerequisite: Nine hours of Sociology. Six-hour internships are only available for internships that offer special opportunities that are not available in a 3-hour internship. See instructor prior to enrolling to determine if an available internship opportunity qualifies for 6 hours of credit.

SW 4925 - Internship

Cross-listing: CJ 4925, SOC 4925

Credit 9.

Prerequisite: Nine hours of Sociology. Nine-hour internships are only available for internships that offer special opportunities that are not available in a 3- or 6-hour internship. The great majority of these will be summer internships that require the intern to work a 40-hour week. See instructor prior to enrolling to determine if an available internship opportunity qualifies for 9 hours of credit.

SW 4940 - Independent Study

Cross-listing: CJ 4940, SOC 4940

Credit 1.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of Sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4941 - Independent Study

Cross-listing: CJ 4941, SOC 4941

Credit 1.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of Sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4948 - Independent Study

Cross-listing: CJ 4948, SOC 4948

Credit 2.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of Sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4949 - Independent Study

Cross-listing: CJ 4949, SOC 4949

Credit 2.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of Sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4950 (5950) - Independent Study

Cross-listing: CJ 4950, SOC 4950 (5950)

Credit 3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of Sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4951 - Independent Study

Cross-listing: CJ 4951, SOC 4951

Credit 3.

Prerequisite: Consent of instructor. Allows the student to undertake study in an area of Sociology where there is no appropriate course. Students may take a total of up to 6 hours of Independent Study hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4970 - Special Topics

Cross-listing: CJ 4970 (5970), SOC 4970 (5970)
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4971 - Special Topics

Cross-listing: CJ 4971, SOC 4971
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4972 - Special Topics

Cross-listing: CJ 4972, SOC 4972
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4973 - Special Topics

Cross-listing: CJ 4973, SOC 4973
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4974 - Special Topics

Cross-listing: CJ 4974, SOC 4974
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4975 - Special Topics

Cross-listing: CJ 4975, SOC 4975
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4976 - Special Topics

Cross-listing: CJ 4976, SOC 4976
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4977 - Special Topics

Cross-listing: CJ 4977, SOC 4977
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4978 - Special Topics

Cross-listing: CJ 4978, SOC 4978
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4979 - Special Topics

Cross-listing: CJ 4979, SOC 4979
Credit 1.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of special topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4980 - Special Topics

Cross-listing: CJ 4980, SOC 4980
Credit 2.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a

single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

SW 4990 - Special Topics

Cross-listing: CJ 4990, SOC 4990

Credit 3.

Prerequisite: Consent of instructor. Seminar or lecture course on a selected topic, issue, or interest area in Sociology. Students may take a total of up to 6 hours of Special Topics hours with no more than 3 hours on a single topic. Up to 6 hours may be taken for Upper Division credit to fulfill major or minor requirements.

Special Education

SPED 2010 - Introduction to Special Education

Lec. 3. Credit 3.

This course is designed to provide candidates with: (a) an understanding of historical and contemporary perspectives on the critical issues of students with exceptional needs and the state of federal laws influencing the education of exceptional students, (b) an understanding of the characteristics and needs of children placed in the most prevalent disability categories, and (c) to provide candidates with an overview of special education service delivery models, methods and procedures as indicated by research and practical applications.

SPED 2040 - Special Education Procedures and Methods

Lec. 3. Credit 3.

Prerequisite: SPED 2010 or consent of instructor. Overview of best practices in the delivery of special education and support services.

SPED 2821 - Practicum: Special Education Procedures and Methods

Lab. 4. Credit 1.

Prerequisite: SPED 2010 or consent of instructor. Corequisite: SPED 2040. Supervised observation, recording, and practice of methods and procedures used in special education.

SPED 3000 - Teaching Persons with Disabilities in the Regular Classroom

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Alternatives in educational assessment, materials, methods, and procedures for the regular classroom teacher. A minimum grade of B is required to meet requirements for licensure candidates.

SPED 3020 - Characteristics and Needs of Persons with Comprehensive Disabilities

Lec. 3. Credit 3.

Prerequisite: SPED 2010, SPED 3050 and full admission to the Teacher Education Program. This course is designed to provide an intensive study into the various types of disabilities that fall within the range of moderate to severe disabilities. In addition to the characteristics of these disabilities, students will explore a broad range of research-based teaching strategies and techniques for this population. A built-in practicum will provide hands-on experience while implementing systematic data driven instruction. Additional emphasis is placed on core components that serve students who receive special education services with moderate to severe disabilities.

SPED 3030 - The Education of Persons with Learning Disabilities

Lec. 3. Credit 3.

Prerequisite: SPED 2010, SPED 3050 and full admission to the Teacher Education Program. This course will provide an intensive study of background information and current perspectives in specific learning disabilities. Concepts of neurological dysfunction, dyslexia, perceptual impairments, etc., are reviewed from an interdisciplinary perspective. Emphasis on knowledge, comprehension, and evaluation of these concepts as they apply to education and behavior management strategies. Considerations in diagnosis and educational programming are developed.

SPED 3031 - Physical Management and Support Services for Orthopedic, Motor and Health Impaired

Lec. 3. Credit 3.

Introduction to medical and educational support services. Emphasizes handling, instructional modifications, and support services.

SPED 3050 - Universal Design for Special Education

Lec. 5. Credit 5.

Prerequisite: SPED 2010 and full admission to Teacher Education Program. This course is designed to provide candidates with an extensive overview of research-based strategies for improving student outcomes through universally designed planning of environment, instruction, and assessment. The course will also focus on service delivery models, methods, and procedures for including the use of state and federal mandates. A minimum grade of B is required to meet requirements for licensure candidates.

SPED 3110 - Behavior Concepts

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Focus on defining applied behavior analysis; selecting, assessing and evaluating behavior to change; and functional and experimental analyses of behavior change.

SPED 3120 - Interventions and Supports

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program and SPED 3110. Focus on the development of new behaviors, various clinical interventions for decreasing interfering behaviors, and maintaining behavioral changes.

SPED 3480 - Horticultural Therapy

Cross-listing: AGHT 3480

Spring (O). Lec. 2. Lab. 2. Credit 3.

Introduction to the application of horticulture for special education and as therapy for treatment, rehabilitation, and/or training of individuals with disabilities.

(O) and (E) Denote Odd and Even Years Respectively

SPED 4000 (5000) - Introduction to Communication Disorders

Cross-listing: COMM 4000 (5000)

Lec. 3. Credit 3.

Principles of and therapeutic approaches to speech, language, and hearing disorders.

SPED 4030 - Applied Behavior Analysis for Teachers

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Overview of the principles of behavior applied to instructional management. A minimum grade of B is required to meet requirements for licensure candidates.

SPED 4040 (5040) - Introduction to Education of Gifted and Talented

Lec. 3. Credit 3.

Topics to include: characteristics, incidence, identification, diagnosis, and educational needs of gifted and talented children/youth. Graduate would include but not limited to a case study of gifted person.

SPED 4050 (5050) - Sign Language I

Cross-listing: LIST 4050

Lec. 3. Credit 3.

Introduction to and development of a basic vocabulary in Signed English concepts in the use of alternative methods of communication.

SPED 4090 (5090) - Sign Language II

Cross-listing: LIST 4090

Lec. 3. Credit 3.

Prerequisite: SPED 4050 (5050). Continuation of vocabulary development in Signed English and appreciation of practical situations in various professional fields.

SPED 4100 - Collaboration and Inclusive Practice

Lec. 3. Credit 3.

Prerequisite: SPED 2010, SPED 3050 and full admission to Teacher Education Program. Corequisite: Residency I. This course is designed so candidates can gain research-based and practical knowledge of inclusion, collaboration, and co-teaching. It is designed for the special educator who will be working in resource or inclusive settings in the local education agency.

SPED 4110 - Behavioral Assessment

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program, SPED 3110 and SPED 3120. Focus on verbal behavior, motivating operations, and the use of functional analysis in treating common disorders.

SPED 4120 - Topics in Behavior

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program, SPED 3110, SPED 3120 and SPED 4110. Focus on ethics in the implementation of behavior services and special uses of behavioral assessment.

SPED 4140 (5140) - Curriculum Development and Education of Gifted and Talented Children/Youth

Lec. 3. Credit 3.

Topics to include: School programs, curricula, materials, and methods for the education of gifted and talented. Graduate would include but not limited to comparing and contrasting three models in gifted education.

SPED 4170 - Community Residency/Practicum I

Credit 7.

Prerequisite: Full Admission to the Teacher Education Program, SPED 3110 and SPED 3120. Corequisite: SPED 4110. Provides an internship experience by working with persons with disabilities within the community setting by allowing the demonstration/implementation of factual knowledge and skills gained through coursework and hands-on experience. Implementing behavior intervention strategies and self-advocacy skills will show competence

of this course and will be explored through weekly individual meetings with university faculty.

SPED 4180 - Community Residency/Practicum II

Credit 9.

Prerequisite: Full Admission to the Teacher Education Program and SPED 4170. Corequisite: SPED 4120. Provides an intensive internship experience by working with persons with disabilities within the community setting. Through individual mentorship of university faculty, the student will demonstrate skills necessary to implement methods in a variety of placements and the knowledge to complete mandatory state required paperwork, intensive behavior supports, and self-advocacy skills.

SPED 4200 (5200) - Teaching Students with Autism Spectrum Disorders

Lec. 3. Credit 3.

Prerequisite: Full admission to the Teacher Education Program. Within the context of persons with ASD, this course is designed to provide the student with a model of the teaching process progressing from identification, to instructional design, to the use of research-validated methods for instructional delivery and the provision of needed educational, social, academic, and behavioral supports. A minimum grade of B is required to meet requirements for licensure candidates.

SPED 4850 (5850) - Workshop in Education

Credit 1-6.

Laboratory approach providing opportunities for experienced education personnel to study in-depth Special Education problems.

SPED 4870 - Student Teaching I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SPED 4880 and SPED 4890. Activities directly related to teaching performance; planning and presenting lessons, directing study, and managing the classroom. A minimum grade of B is required to meet degree requirements.

SPED 4871 - Residency I

Credit 5.

Prerequisite: FOED 3810 grade B or better, full admission to the Teacher Education Program, and full admission to Residency I. Corequisite: SPED 4872. Performance based clinical experience in authentic settings involving planning appropriate instruction based on student's needs, creating a positive learning

environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A minimum grade of B is required to meet degree requirements.

SPED 4872 - Professional Seminar I

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SPED 4871. Seminar for Residency I candidates to develop curriculum, identify effective instructional strategies, and implement appropriate assessment methods to support and meet the needs of all learners. A minimum grade of B is required to meet requirements for licensure candidates.

SPED 4880 - Student Teaching II

Credit 5.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SPED 4870 and SPED 4890. Continuation of SPED 4870 in a different setting. A minimum grade of B is required to meet degree requirements.

SPED 4881 - Residency II

Credit 10.

Prerequisite: SPED 4871 with a grade of B or better, and full admission to the Teacher Education Program. Performance based full time clinical experience in authentic settings involving planning appropriate instruction based on student's needs, demonstrating effective instructional strategies, creating a positive learning environment, communicating and collaborating with colleagues and others, effectively assessing student learning and reflecting on practice. A minimum grade of B is required to meet degree requirements.

SPED 4882 - Professional Seminar II

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SPED 4881. Seminar for Residency II candidates supporting professional development in areas of planning, assessment, instruction, classroom management, communication and reflection.

SPED 4890 - Seminar: Education and Society

Credit 2.

Prerequisite: Full admission to the Teacher Education Program. Corequisite: SPED 4870 and SPED 4880. Seminar on issues related to the interrelationships among school, culture, and society; a historical, philosophical, and sociological analysis.

Study Abroad

SA 2010 - ISEP Program

Credit 0.

Study at an institution abroad as part of the International Student Exchange Program. [Credit may be earned as part of the curriculum in your major. See advisor for approval of courses which apply to curriculum prior to the exchange.]

SA 2020 - ISEP Program

Credit 0.

Study at an institution abroad as part of the International Student Exchange Program. [Credit may be earned as part of the curriculum in your major. See advisor for approval of courses which apply to curriculum prior to the exchange.]

SA 2110 - Magellan Exchange Program

Credit 0.

Study at an institution abroad as part of the Magellan Exchange Program. [Credit may be earned as part of the curriculum in your major. See advisor for approval of courses which apply to curriculum prior to the exchange.]

SA 2120 - Magellan Exchange Program

Credit 0.

Study at an institution abroad as part of the Magellan Exchange Program. [Credit may be earned as part of the curriculum in your major. See advisor for approval of courses which apply to curriculum prior to the exchange.]

SA 2210 - Non-Affiliate Exchange

Credit 0.

An exchange for study abroad that is not a part of the affiliated program. [Credit may be earned as part of the curriculum in your major. See advisor for approval of courses which apply to curriculum prior to the exchange. A contract will be signed for those if Financial Aid is involved.]

SA 2220 - Non-Affiliate Exchange

Credit 0.

An exchange for study abroad that is not a part of the affiliated program. [Credit may be earned as part of the curriculum in your major. See advisor for approval of courses which apply to curriculum prior to the exchange. A contract will be signed for those if Financial Aid is involved.]

SA 2310 - TTU-Brazil Higher Education Consortia Program

Credit 0.

Study at a partner institution in Brazil as part of the TTU-Brazil Program. [Credit may be earned as part of the curriculum in your major. See advisor for approval of courses which apply to curriculum prior to the exchange.]

SA 2320 - TTU-Brazil Higher Education Consortia Program

Credit 0.

Study at a partner institution in Brazil as part of the TTU-Brazil Program. [Credit may be earned as part of the curriculum in your major. See advisor for approval of courses which apply to curriculum prior to the exchange.]

Tennessee Consortium for International Studies

TCIS 2990 - TnCIS Program

Credit 3.

Study abroad with the Tennessee Consortium for International Studies.

TCIS 2991 - TnCIS Program

Credit 3.

Study abroad with the Tennessee Consortium for International Studies.

TCIS 2992 - TnCIS Program

Credit 3.

Study abroad with the Tennessee Consortium for International Studies.

TCIS 2993 - TnCIS Program

Credit 3.

Study abroad with the Tennessee Consortium for International Studies.

TCIS 4990 - TnCIS Program

Credit 3.

Study abroad with the Tennessee Consortium for International Studies.

TCIS 4991 - TnCIS Program

Credit 3.

Study abroad with the Tennessee Consortium for International Studies.

TCIS 4992 - TnCIS Program

Credit 3.
Study abroad with the Tennessee Consortium for International Studies.

TCIS 4993 - TnCIS Program

Credit 3.
Study abroad with the Tennessee Consortium for International Studies.

Theatre

THEA 1015 - Acting I

Fall. Lec. 3. Credit 3.
Fundamentals of the acting process examined through improvisation, characterization, text analysis, and basic acting technique.

THEA 1025 - Stagecraft I

Fall. Lec. 3. Credit 3.
An introduction to theatre technology including construction techniques, shop safety, types of scenery, scale drawing, common materials, and scene painting. Students will gain practical experience working on TTU theatre productions.

THEA 1030 - Introduction to Theatre

Lec. 3. Credit 3.
Theatre appreciation, designed to enhance the student's enjoyment of plays.

◆ Meets Tennessee Technological University general education requirement (Humanities/Fine Arts).

THEA 2015 - Acting II

Spring. Lec. 3. Credit 3.
Prerequisite: THEA 1015 and THEA 2155 or permission of the instructor. Continuation of the principles explored in THEA 1015 with a greater emphasis on scene work, text analysis, and character development.

THEA 2025 - Stagecraft II

Spring. Lec. 3. Credit 3.
Prerequisite: THEA 1025. Advanced stagecraft continues with scenic techniques including renderings and scale models, stage lighting theory and practice, sound design, and projections. Advanced students will serve as assistants to the technical director and as crew heads for TTU theatre productions.

THEA 2110 - Play Production

Lec. 1. Credit 1.
Practical experience on any phase of an English department production from playwriting to performance or committee or crew work. (Courses may be repeated for credit.)

THEA 2155 - Voice and Diction

Spring (O). Lec. 3. Credit 3.
Lecture, interactive course covering basic elements of voice production and articulation.

(O) and (E) Denote Odd and Even Years Respectively

THEA 3000 - History of the Theatre

Lec. 3. Credit 3.
Representative theatrical styles from the classical through contemporary periods.

THEA 3001 - Theatre Special Topics

Spring (O). Lec. 3. Credit 3.
Coursework chosen on the basis of student interest and need. (May be taken for credit more than once if the topic is different each time.)

(O) and (E) Denote Odd and Even Years Respectively

THEA 3200 - Theatrical Design

Lec. 3. Credit 3.
Prerequisite: THEA 2025. THEA 3200 will explore the history, components, and creation of theatrical design. Students will gain a full understanding of the design process and concepts of scenic, lighting, costumes, and sound design. Lectures will provide the background knowledge, while the projects will provide the hands-on design experience.

THEA 3600 - Film Studies

Lec. 3. Credit 3.
This course will focus on the film work of significant movie directors, performers, cinematographers or on a particular film genre. The student will gain a sense of the work of that director, performer, cinematographer, as well as the challenges they face putting together a film. Or, the student will get an opportunity to examine films that are significant to that particular genre. We will examine film practices, film directors, actors, cinematographers, or film genres as chosen by the instructor. The student will be responsible for watching the films in class, discussing the films and writing about the films. Course may be repeated provided the content is different each time.

THEA 4100 (5100) - Advanced Acting

Lec. 3. Credit 3.

Prerequisite: THEA 2015. Advanced voice and movement study for the stage with an emphasis on period acting styles; in-depth script and character analysis; and advanced scene study.

THEA 4121 (5121) - Shakespeare

Cross-listing: ENGL 4121 (5121)

Lec. 3. Credit 3.

Historical, thematic, and other approaches in the study of Shakespeare. (May be repeated once as an elective provided the course content is different.)

THEA 4200 - Theatre Design Practicum

Lec. 3. Credit 3.

Prerequisite: THEA 1025, THEA 2025, and THEA 3200. Students are assigned as scenic, lighting, sound, or costume designers for a TTU theatre production.

THEA 4300 - Play Directing

Fall (E). Lec. 3. Credit 3.

Script analysis and principles of direction. Students direct plays for public performance.

(O) and (E) Denote Odd and Even Years Respectively

THEA 4400 (5400) - Dramatic Literature

Lec. 3. Credit 3.

Study of representative plays drawn from the classical through contemporary periods.

THEA 4500 (5500) - Creative Dramatics

Spring (E). Lec. 3. Credit 3.

Use of an individual's dramatic imagination as a learning and teaching device.

(O) and (E) Denote Odd and Even Years Respectively

THEA 4600 - Theatre Internship

Int. 3. Credit 3.

Prerequisite: Junior/Senior Status and consent of instructor. Part time or full-time employment in a business or institution setting related to a student's academic and career goals. Cannot be taken in place of required or elective theatre courses, undergraduate or graduate. Course can be taken twice, so long as the student interns in a different business or institution for each internship.

University Business

UBUS 1020 - Success Skills for Business Studies

Rec. 2. Credit 1.

Connects students to the university and College of Business environments through meaningful academic and non-academic, out-of-classroom activities. Emphasizes critical thinking in the formation of academic and social goals, group participation, and in self-management and study skills.

University Music

UNMU 1020 - First-Year Music Connection (For Music Majors Only)

Rec. 1. Credit 1.

This course engages music students in meaningful artistic, academic and non-academic out-of-classroom activities, emphasizing critical thinking in the formation of academic and artistic goals and providing essential guidance in self-management, study skills, and artistic development.

University Pre-Professional

UNPP 1020 - University Pre-Professional, First-Year Interactions and Advisement

Lec. 2. Act. 1. Credit 1.

This course engages the student in meaningful classroom and out-of-classroom activities. This is intended for pre-professional health science students. It emphasizes information, activities, and requirements important to becoming competitive in a professional school application pool.

UNPP 2020 - Special Topics

Lec. 1-3. Credit 1-3.

Prerequisite: Consent of instructor. Lower Division level study in a specific topic not commonly found in a discipline on campus, not to include work experience. May be repeated if topic is different. No more than a combined total of 9 hours of special topics may be taken.

UNPP 3020 - Special Topics

Lec. 1-3. Credit 1-3.

Prerequisite: Sophomore or standing above; consent of instructor. Upper Division level study in a specific topic not commonly found in a discipline on campus, not to include work experience. May be repeated if topic is different. No more than a combined total of 9 hours of special topics may be taken.

University Success

UNIV 1020 - First-Year Connections

Rec. 2. Credit 1.

Prerequisite: Freshman Standing. Engages students in meaningful academic and nonacademic, in-class and out-of-class activities. Emphasizes ethical behavior and the use of critical thinking in the formation of academic and social goals and support groups, and in self-management and study skills. Includes a creative inquiry project/activity which students should share.

UNIV 1022 - Directed Studies

Credit 1.

Enhanced presentation of study skills, time management, test-taking strategies, problem solving, and in-depth work in one or more content areas of difficulty.

UNIV 1030 - Learning Strategies

Lec. 2. Credit 1.

UNIV 1030 is a first-year-experience and study skills course designed to strengthen the student's connection to Tennessee Tech University by focusing on the enhancement of skills needed for academic success.

This course engages the student in meaningful academic and non-academic in-and-out-of-classroom activities. It emphasizes critical thinking in the formation of academic and social goals and support groups, in self-management, and in study strategies.

Placement in Learning Strategies (UNIV 1030) is required for students who place into two or more subject areas [Math, Reading, Writing/English] of learning support.

Students may self-place to improve their study techniques for college-level work.

UNIV 1030 may be conducted as a "Special Topics" course for students who have already completed the requirement but are required to take it as a result of being readmitted on probation or after suspension. In this capacity, the course could be taken more than once with special permission under specified circumstances. Attendance is required.

Withdrawal is not allowed except with special permission.

UNIV 3886 - Experiential Learning

Credit 6.

Work or voluntary experience that closely relates to the major, equates with skills knowledge or perspectives currently required in course work and involves analysis or reflection at lower division or upper division undergraduate credit. Portfolio evaluated by faculty team. To apply for this credit, see the following link www.tntech.edu/ISEE/CreditForLifeExperience.pdf.

UNIV 4110 - PRST/LIST Internship

Lec. 3-6. Credit 3-6.

Prerequisite: Permission of instructor. Educational activity within an organization dealing with the type of work the student hopes to do upon graduation. The internship is a learning environment where the student is treated as one of the employees but often does not have the pressures of being a full-time employee.

Vehicle Engineering

VE 3400 - Introduction to Automotive Systems

Lec. 3. Credit 3.

Prerequisite: Junior standing in engineering; consent of instructor. Introduction to a vehicle as a complex system, interactions of the subsystems in terms of overall performance. Overview of propulsion systems, suspensions and steering systems, tire-road interface, structural behavior and crash worthiness, materials and manufacturing, driver-passenger vehicle interactions, and onboard electronics.

VE 3500 - Sensors, Transducers and Instrumentation

Lec. 2. Lab. 2. Credit 3.

Prerequisite: ECE 2010; PHYS 2120; consent of instructor. Introduction to sensors used in vehicles including: oxygen, tire pressure, emission, temperature, blind spot monitoring, etc. Focus on principles of measurements, theory of instruments and sensors for measuring typical physical quantities in mechanical and electrical systems. Calibration, measurement uncertainty and noise.

VE 4100 - Senior Design Project I

Lec. 2. Lab. 2. Credit 3.

Prerequisite: VE 3400; senior standing in engineering; consent of instructor. Principles of vehicle engineering design with emphasis on contemporary industrial design processes and engineering economics with applications in product design. Development phase for capstone team design project in vehicle engineering: preliminary design, supporting analyses and drawings with bill of materials.

VE 4200 - Senior Design Project II

Lec. 1. Lab. 4. Credit 3.

Prerequisite: VE 3500; VE 4100; consent of instructor. Prototyping and testing phase for capstone team design project in vehicle engineering. Final design reporting (written and oral).

VE 4500 - Reliability and Quality Engineering

Cross-listing: (ENGR)

Lec. 3. Credit 3.

Prerequisite: MATH 3470 or ENGR (CEE) 3720. Basic engineering and statistics principles as well as advanced tools focusing on design of experiment, statistical process control and reliability engineering are presented. Theoretical and practical methods to improve the capability of systems to perform their designated functionalities, to predict the probability of their functioning without failures in certain environments for desired periods, to assess their maintainability, availability and safety based on sampled data, and to make decisions on corrective and mitigation.

Web Design

WEBD 1500 - Introduction to Web Design

Lec. 3. Credit 3.

This course is an introduction to the internet and its function as well as a hands-on workshop on how to build a basic webpage.

WEBD 2300 - Web Site Design: Dynamic Sites

Lec. 3. Credit 3.

Prerequisite: WEBD 1500, CIW certification, evidence of having passed CIW, Exam ID0-410, or consent of the instructor. This course focuses on authoring sites, creating content, creating digital media, and effectively employing standards and technologies for effective site design.

WEBD 3500 - Rhetoric and the Internet

Cross-listing: PC 3500

Lec. 3. Credit 3.

Prerequisite: ENGL 1020. Instruction in web site analysis and document design, including background in rhetorical theory and principles.

WEBD 3700 - Information Design in the Professions

Cross-listing: PC 3700

Lec. 3. Credit 3.

Prerequisite: ENGL 3250 or PC 3250. Practical experience in the field of information design: a specialized field in which complex information is presented clearly and efficiently to its intended audience. Students will study the design principles used to develop both print and web documents and learn about the technologies used to develop and publish such as documents.

WEBD 4950 - Advanced Web Page Design

Lec. 3. Credit 3.

Prerequisite: WEBD 2300. The development of web pages as documents using advanced tools.

WEBD 4975 - Seminar in Web Design

Lec. 3. Credit 3.

Integrative course focusing on major concepts of Web Design.

WEBD 4995 - Internship in Web Design

Credit 3.

Prerequisite: WEBD 4950. Part-time employment in a professional or institutional situation related to web design. May be repeated twice for credit.

Wildlife and Fisheries Science

WFS 2991 - Topics

Cross-listing: BIOL 2991

Credit 1.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four hours on a special topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299- Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

WFS 2992 - Topics

Cross-listing: BIOL 2992

Credit 2.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four hours on a special topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299- Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

WFS 2993 - Topics

Cross-listing: BIOL 2993

Credit 3.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four hours on a special topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299- Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

WFS 2994 - Topics

Cross-listing: BIOL 2994

Credit 4.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four hours on a special topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299- Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

WFS 3130 - General Ecology

Cross-listing: BIOL 3130
Lec. 3. Lab. 3. Credit 4.

The relationship between plants and animals and their environment. The laboratory provides examples of concepts discussed in lecture and analytical procedures used in interpreting data.

WFS 3500 - Wildlife Law Enforcement

Cross-listing: CJ 3500
Lec. 3. Credit 3.

State wildlife laws and practices used in their enforcement.

WFS 4220 (5220) - Biostatistics

Cross-listing: BIOL 4220 (5220)
Lec. 3. Credit 3.

Probability and frequency distribution; statistical populations and samples; and tests of hypotheses used in biological research.

WFS 4230 (5230) - Animal Behavior

Cross-listing: BIOL 4230 (5230)
Lec. 3. Credit 3.

Prerequisite: Junior Standing. Introduction to basic principles underlying the behavior of animals.

WFS 4500 (5500) - National Wildlife Policy

Lec. 3. Credit 3.

Prerequisite: Eight semester hours of Biology. Policies, agencies and laws that influence wildlife management on a national level.

WFS 4630 (5630) - Ornithology

Cross-listing: BIOL 4630 (5630)
Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. General survey of the class Aves with emphasis on morphology, identification and ecology of local birds.

WFS 4640 (5640) - Waterfowl Ecology and Management

Lec. 2. Lab. 3. Credit 3.

Prerequisite: BIOL 3130 or WFS 3130. Advanced ecological principles as illustrated by ducks, geese, and

swans, including habitat selection, morphological and behavioral adaptations, intraspecific and interspecific interactions, and reproductive ecology. Field techniques for identifying species and management approaches are emphasized in the laboratory.

WFS 4650 (5650) - Marine Biology

Cross-listing: BIOL 4650 (5650)
Lec. 3. Lab. 2. Credit 4.

Prerequisite: BIOL 3130 or WFS 3130. An introduction to the study of the marine environment and marine organisms.

WFS 4660 (5660) - Wild Bird Ecology

Lec. 2. Lab. 3. Credit 3.

Prerequisite: BIOL 3130 or WFS 3130 or concurrent enrollment. The ecology and natural history of selected avian species, emphasizing game species, endangered species, predators, and pests. Anatomy and procedures for identification are the focus of laboratories.

WFS 4670 (5670) - Wild Mammal Ecology

Lec. 2. Lab. 2. Credit 3.

Prerequisite: BIOL 3130 or WFS 3130 or concurrent enrollment. The natural history and ecology of selected mammal species, emphasizing game species, furbearers, endangered species, predators, and pests. Anatomy and procedures for identification are the focus of the laboratories.

WFS 4700 (5700) - Habitat Management

Lec. 2. Lab. 3. Credit 3.

Prerequisite: BIOL 3240. Description, principles and techniques of quantitative characterization of wildlife habitat types.

WFS 4710 (5710) - Fisheries Management

Lec. 3. Lab. 3. Credit 4.

Prerequisite: BIOL 3130 or WFS 3130. Theory, methods, and techniques of freshwater fisheries management. Field and laboratory.

WFS 4711 (5711) - Fisheries Management

Lec. 3. Credit 3.

Prerequisite: BIOL 3130 or WFS 3130. Classroom-based overview of theory, methods, and techniques of freshwater fisheries management.

WFS 4730 (5730) - Conservation Biology

Lec. 3. Credit 3.

Prerequisite: BIOL 3130 or WFS 3130. Advanced

concepts of plant and animal conservation, including biodiversity, population genetics, habitat fragmentation, endangered and threatened species, and ecosystem management.

WFS 4740 (5740) - Wildlife Principles

Lec. 2. Credit 2.

Prerequisite: BIOL 3130 or WFS 3130. Classroom-based theory and principles of wildlife management.

WFS 4760 (5760) - Fish Culture

Lec. 2. Lab. 4. Credit 4.

Prerequisite: BIOL 3130 or WFS 3130. Cultural practices; hatchery operation, care of brood fish, transport and stocking; and the ecological requirements of hatchery species.

WFS 4770 (5770) - Nongame Species Management

Lec. 3. Credit 3.

Prerequisite: Junior Standing. Advanced concepts of managing non-game species. Topics include urban wildlife, funding mechanisms, monitoring and inventory techniques, habitat management, rare species, and state wildlife action plans.

WFS 4790 - Wildlife Techniques

Summer. Lec. 2. Lab. 12. Credit 6.

Prerequisite: WFS 4740 (5740). Field-based techniques for studying and managing wildlife populations.

WFS 4800 - Conservation Techniques--Summer.

Lec. 1. Lab. 6. Credit 3.

Prerequisite: BIOL 3120 or BIOL 3130/WFS 3130. Field-based techniques used by conservation biologists to study and manage fish and wildlife populations.

WFS 4810 (5810) - Ichthyology

Cross-listing: BIOL 4810 (5810)

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Identification, classification, anatomy, physiology, ecology and adaptations of fishes; emphasis on North American freshwater species.

WFS 4820 (5820) - Mammalogy

Cross-listing: BIOL 4820 (5820)

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Classification, structure and function, phylogeny and geographical distribution of mammals; emphasis on Tennessee mammals.

WFS 4830 (5830) - Herpetology

Cross-listing: BIOL 4830 (5830)

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Classification, adaptations, habits, life histories and geographical distribution of amphibians and reptiles; emphasis on North American species.

WFS 4840 (5840) - Limnology

Cross-listing: BIOL 4840 (5840)

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Physiochemical and biological dynamics of inland waters.

WFS 4870 (5870) - GIS for Wildlife and Fisheries

Lec. 2. Lab. 3. Credit 3.

Prerequisite: Junior Standing. Introduction to Geographic Information Systems (GIS) using both raster and vector spatial data models, with hands on experience utilizing computers to aid problem solving in Wildlife and Fisheries Science.

WFS 4900 - Internship in Wildlife and Fisheries Science

Credit 3.

Prerequisite: Consent of instructor required. Students work with a public agency that is compatible with their interests. (May be taken twice if the assignments are with different agencies or different divisions within an agency.)

WFS 4991 (5991) - Advanced Topics

Cross-listing: BIOL 4991 (5991)

Credit 1.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four credit hours on an advanced topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299-Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

WFS 4992 (5992) - Advanced Topics

Cross-listing: BIOL 4992 (5992)

Credit 2.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four credit hours on an advanced topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299-Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

WFS 4993 (5993) - Advanced Topics

Cross-listing: BIOL 4993 (5993)

Credit 3.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four credit hours on an advanced topic in the life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299-Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

WFS 4994 (5994) - Advanced Topics

Cross-listing: BIOL 4994 (5994)

Credit 4.

Prerequisite: Consent of instructor and departmental chairperson. Focused study equivalent to one, two, three, or four credit hours on an advanced topic in the

life sciences or wildlife/fisheries sciences under faculty supervision and approval of the department chairperson. Course may be repeated until a maximum of 12 hours of combined credit in BIOL (WFS) 299-Topics or BIOL (WFS) 499- (599-) Advanced Topics courses are earned.

Women and Gender Studies

WGS 2010 - Introduction to Women and Gender Studies

Lec. 3. Credit 3.

Examination of issues in women and gender studies from a social sciences perspective. This course is a requirement for the Women and Gender Studies minor.

◆ Meets Tennessee Technological University general education requirement (Social/Behavioral Sciences).

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Wallace Samuel Prescott B.S., Tennessee Polytechnic Institute, 1946; M.S., The University of Tennessee, 1952; Ph.D., University of Illinois, 1961.	1985 - 1987
Angelo Anthony Volpe B.S., Brooklyn College, 1959; M.S., 1962; Ph.D., 1966, University of Maryland.	1987 - 2000
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- Thomas, Andrew C.**, Associate Professor of Counseling and Psychology, Emeritus. Ed.D., University of Georgia, 1973 (1973-2004).
- Thurman, Dewey D.**, Instructor of Mathematics, Emeritus. M.S., Tennessee Technological University, 1985 (1985-2015).
- Tidwell, Marvin**, Associate Professor of Physics, Emeritus. B.S., Emory University, 1948 (1955-1988).
- Tolbert, R. Noel**, P.E., Professor of Civil Engineering, Emeritus. Ph.D., Vanderbilt University, 1975 (1979-2007).
- Tolbert, Rebecca P.**, Associate Vice President for Academic Affairs and Enrollment Management; Associate Professor of Nursing, Emerita. M.N.Sc., University of Arkansas, 1973 (1980-2006).
- Turvaville, Lester Jackson**, P.E., Professor of Industrial Engineering, Emeritus. Ph.D., Georgia Institute of Technology, 1967 (1976-1980, 1982-1997).
- Ventrice, Carl A.**, Professor of Electrical and Computer Engineering, Emeritus. Ph.D., Pennsylvania State University, 1962 (1964-2011).
- Viera, Carroll M.**, Professor of English, Emerita. Ph.D., Florida State University, 1972 (1974-2007).
- Volpe, Angelo A.**, President; Professor of Chemistry, Emeritus. Ph.D., University of Maryland, 1966 (1987-2000).
- Weidner, Heidemarie Z.**, Professor of English, Emerita. Ph.D., University of Louisville, 1991 (1993-2011).
- Weinrauch, J. Donald**, Professor of Marketing, Emeritus. Ph.D., University of Arkansas, 1973 (1977-2009).
- Wells, John C.**, Professor of Physics, Emeritus. Ph.D., John Hopkins University, 1968 (1970-2003).
- Wells, Martha J.M.**, Professor of Chemistry, Emerita. Ph.D., Auburn University, 1981 (1989-2010).
- Whitaker, Carolyn V.**, Associate Professor of Nursing, Emerita. M.S.N., Vanderbilt University, 1972 (1980-2003).
- Whiteaker, Larry H.**, Professor of History, Emeritus. Ph.D., Princeton University, 1977 (1973-2009).
- Whitney, Sharon G.**, Associate Professor of Political Science, Emerita. Ph.D., University of California at Santa Barbara, 1993 (1993-2008).
- Whitson, Carolyn**, Assistant Professor of Library Science, Emerita. M.A.L.S., George Peabody College for Teachers, 1962 (1966-1991).
- Wilhelm, Albert E.**, Professor of English, Emeritus. Ph.D., University of North Carolina, 1971 (1971-2001).

Winfree, Sam K., Professor of Animal Science,
Emeritus. Ph.D., University of Tennessee, 1973 (1980-
2008).

Yarbrough, David, Professor of Chemical Engineering,
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(1968-2002).

UNIVERSITY COMMITTEES

(The President is a member, ex-officio, of all committees. The Academic Council and the Administrative Council meeting in joint session constitute the University Assembly for Tennessee Technological University).

Academic Council
Administrative Council
Admissions and Credits
Americans with Disabilities Act (ADA) Advisory Committee
Athletics Committee
Budget Advisory Committee
Buildings and Grounds Committee
Campus Recreation Advisory Committee
Campus Space Utilization and Allocation Committee
Chapter 606 - Student Monies Allocation Committee
Commission on the Status of Blacks
Commission on the Status of Women
Committee on Commencements, Convocations, and Academic Ceremonies
Curriculum Committee
Faculty and Staff Traffic Appeals Committee
Faculty Development Steering Committee
Faculty Research Committee
Graduate School Executive Committee
Information Technology Committee
Institutional Animal Care and Use Committee
Institutional Review for the Protection of Human Subjects
Intellectual Property Advisory Committee
International Affairs Committee
Military Affairs Advisory Committee
Non-Instructional Faculty Assignments
Outstanding Clerical and Support Staff Awards Committee
Outstanding Faculty Awards Committee
Outstanding Professional Awards Committee
Sports Hall of Fame Committee
Staff Advisory Committee to the President
Stormwater Management Committee
Student Affairs Committee
Student Financial Aid Committee
Teacher Education Committee
University Art Committee
University Assembly
University Judicial Council
University Research Advisory Committee
University Safety and Environmental Committee
University Strategic Planning and Assessment Committee

