PEGASUS was the winged horse of the muses in Greek Mythology. He carried their hopes, their aspirations, and their poetry into the skies. PEGASUS is as futuristic as tomorrow’s space exploration in our solar system and into the universe beyond. The seal also bridges the gap between the humanities and space technology.

Florida Technological University, under applicable rules of the Administrative Procedures Act, may change any of the announcements, information, policies, rules, regulations, or procedures set forth in this catalog. The catalog is published once a year and cannot always reflect new and modified regulations. Statements in this catalog may not be regarded in the nature of binding obligations on the institution or the State of Florida.

ACCENT ON THE INDIVIDUAL and ON EXCELLENCE

Florida Technological University is an Equal Opportunity Employer, and assures equal access to educational programs and activity opportunities without regard to race, sex, age, or national origin.
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This public document was promulgated at an annual cost of $1.08 per copy to acquaint the student with the program of study and the cost of attending the university.
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Traveling EAST on I-4, Exit Route 50 East to Route 520 *

From Intersection of I-4 and Hwy. 50 to Hwy. 520 * .................................. 11 Miles
From Intersection of Hwy. 50 and废弃物 520 to Campus ................................. 2 Miles
From Ft. Lauderdale to Campus .............................................................. 9 Miles
From Herndon Airport ................................................................. 7 Miles

* Alternate Routing possible via the Speers Road East-West Expressway (Toll)
ACADEMIC CALENDAR
Summer Quarter 1978

MAY 18 Last day for receipt of regular undergraduate and graduate applications
JUNE 1 Last day for receipt of readmission applications
JUNE 10 Graduate record exam (at designated examination centers). Registration for examination must be made 4 weeks prior to this date
JUNE 12-15 Orientation and advisement for new freshmen and transfer students, and advisement for readmitted students not pre-advised
JUNE 15 *Registration by appointment for new and readmitted graduate, post-baccalaureate, undergraduate students. Student registration will close following the last appointment. Faculty and staff will register following the above appointment.
JUNE 19 Classes begin for Summer Quarter
JUNE 22 Last day to adjust class schedule (end of Add/Drop)
JUNE 22 Last day for late registration (late registration runs concurrently with Add/Drop). A $25 late fee will be assessed.
JUNE 22 Last day for withdrawal with refund
JUNE 22 Last day to apply for graduation for Summer Quarter
JULY 4 Independence Day holiday (University-wide)
JULY 5 Classes resume
JULY 14 Deadline for withdrawal without grade penalty
JULY 14 Last day for removing temporary student status
AUGUST 11 Last day to withdraw from a course or from the University
AUGUST 11 Last day to change from credit to audit, if passing
AUGUST 11 Last day to remove an “I” earned last quarter
AUGUST 25 Classes end for Summer Quarter. Final exam given at discretion of instructor
AUGUST 25 Commencement
AUGUST 28 Grades due in Registrar’s Office

*Resident Center Registration and Add/Drop dates precede registration and vary with individual centers. RESIDENT CENTER STUDENTS MUST CONTACT DIRECTORS OF THEIR CENTERS FOR ADVISEMENT AND REGISTRATION INSTRUCTIONS.

<table>
<thead>
<tr>
<th>MAY</th>
<th>JUNE</th>
<th>JULY</th>
<th>AUGUST</th>
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<tr>
<td>28 29 30 31</td>
<td>25 26 27 28 29 30</td>
<td>30 31</td>
<td>27 28 29 30 31</td>
</tr>
</tbody>
</table>
Fall Quarter 1978

AUGUST 21  Last day for receipt of regular undergraduate and graduate applications
SEPTEMBER 5  Last day for receipt of readmission applications
SEPTEMBER 18  Academic year begins
SEPTEMBER 18-21  Orientation and advisement for new freshmen and transfer students not pre-advised
SEPTEMBER 18-21  Advisement of current and former students not pre-advised
SEPTEMBER 18-21  *Registration by appointment for the following student classifications:
SEPTEMBER 25  Graduate, current undergraduate, readmitted undergraduate, new undergraduate and post-baccalaureate. Faculty and staff will register following the above appointments. Registration will close after the last appointment
SEPTEMBER 28  Classes begin for Fall Quarter
SEPTEMBER 28  Last day to adjust class schedule (end of Add/Drop)
SEPTEMBER 28  Last day for late registration (late registration runs concurrently with Add/Drop). A $25 late fee will be assessed
SEPTEMBER 28  Last day for withdrawal with refund
SEPTEMBER 28  Last day to apply for graduation for Fall Quarter
SEPTEMBER 28  Last day to change from credit to audit
OCTOBER 14  Graduate record exam (at designated examination centers). Registration for examination must be made 4 weeks prior to this date
OCTOBER 20  Last day for withdrawal without grade penalty. Students may not withdraw from classes after this date.
OCTOBER 27  Veterans’ Day Holiday (University-wide)
NOVEMBER 10  Classes resume
NOVEMBER 13  Thanksgiving Holidays (University-wide)
NOVEMBER 23-24  Classes resume
NOVEMBER 27  Last day to remove an “I” earned last quarter
DECEMBER 8  Classes end for Fall Quarter
DECEMBER 9  Final examination period
DECEMBER 11-14  Graduate record exam (at designated examination centers). Registration for examination must be made 4 weeks prior to this date
DECEMBER 15  Commencement
DECEMBER 18  Grades due in Registrar’s Office
DECEMBER 18  Christmas holidays begin (students)

*Resident Center Registration and Add/Drop dates precede registration and vary with individual centers. RESIDENT CENTER STUDENTS MUST CONTACT DIRECTORS OF THEIR CENTERS FOR ADVISEMENT AND REGISTRATION INSTRUCTIONS.

<table>
<thead>
<tr>
<th>SEPTEMBER</th>
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<th>NOVEMBER</th>
<th>DECEMBER</th>
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<td>29 30 31</td>
<td>28 29 30</td>
<td>30</td>
<td>31</td>
</tr>
</tbody>
</table>
**Winter Quarter 1979**

<table>
<thead>
<tr>
<th>NOVEMBER 27</th>
<th>Last day for receipt of regular undergraduate and graduate applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECEMBER 11</td>
<td>Last day for receipt of readmission applications</td>
</tr>
<tr>
<td>JANUARY 2</td>
<td>Orientation and advisement for new freshmen and transfer students not</td>
</tr>
<tr>
<td></td>
<td>pre-advised</td>
</tr>
<tr>
<td>JANUARY 2</td>
<td>Advisement of readmitted students not pre-advised</td>
</tr>
<tr>
<td>JANUARY 3</td>
<td>*Registration by appointment for new and readmitted graduate, post-bac-</td>
</tr>
<tr>
<td></td>
<td>calaureate, undergraduate students. Student registration will close</td>
</tr>
<tr>
<td></td>
<td>following the last appointment. Faculty and staff will register following</td>
</tr>
<tr>
<td></td>
<td>the above appointment.</td>
</tr>
<tr>
<td>JANUARY 4</td>
<td>Classes begin for Winter Quarter</td>
</tr>
<tr>
<td>JANUARY 10</td>
<td>Last day to adjust class schedule (end of Add/Drop)</td>
</tr>
<tr>
<td>JANUARY 10</td>
<td>Last day for late registration (late registration runs concurrently with</td>
</tr>
<tr>
<td></td>
<td>Add/Drop). A $25 late fee will be assessed.</td>
</tr>
<tr>
<td>JANUARY 10</td>
<td>Last day for withdrawal with refund</td>
</tr>
<tr>
<td>JANUARY 10</td>
<td>Last day to apply for graduation for Winter Quarter</td>
</tr>
<tr>
<td>JANUARY 10</td>
<td>Last day to change from credit to audit</td>
</tr>
<tr>
<td>JANUARY 13</td>
<td>Graduate record exam (at designated examination centers). Registration</td>
</tr>
<tr>
<td></td>
<td>for examination must be made 4 weeks prior to this date</td>
</tr>
<tr>
<td>JANUARY 31</td>
<td>Last day for removing temporary student status</td>
</tr>
<tr>
<td>FEBRUARY 7</td>
<td>Deadline for withdrawal without grade penalty. Students may not withdraw</td>
</tr>
<tr>
<td></td>
<td>from classes after this date.</td>
</tr>
<tr>
<td>FEBRUARY 23</td>
<td>Last day to remove an &quot;I&quot; earned last quarter</td>
</tr>
<tr>
<td>FEBRUARY 24</td>
<td>Graduate record exam (at designated examination centers). Registration</td>
</tr>
<tr>
<td></td>
<td>for examination must be made 4 weeks prior to this date</td>
</tr>
<tr>
<td>MARCH 9</td>
<td>Classes end for Winter Quarter</td>
</tr>
<tr>
<td>MARCH 12-15</td>
<td>Final examination period</td>
</tr>
<tr>
<td>MARCH 16</td>
<td>Commencement</td>
</tr>
<tr>
<td>MARCH 17</td>
<td>Grades due in Registrar's Office</td>
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</table>

*Resident Center Registration and Add/Drop dates precede registration and vary with individual centers. RESIDENT CENTER STUDENTS MUST CONTACT DIRECTORS OF THEIR CENTERS FOR ADVISEMENT AND REGISTRATION INSTRUCTIONS.*
Spring Quarter 1979

FEBRUARY 19
Last day for receipt of regular undergraduate and graduate applications

MARCH 5
Last day for receipt of readmission applications

MARCH 19-22
Orientation and advisement for new freshmen and transfer students, and advisement for readmitted students not pre-advised

MARCH 22
Registration by appointment for new and readmitted graduate, post-baccalaureate, undergraduate students. Student registration will close following the last appointment. Faculty and staff will register following the above appointment.

MARCH 26
Classes begin for Spring Quarter

MARCH 29
Last day to adjust class schedule (end of Add/Drop)

MARCH 29
Last day for late registration (late registration runs concurrently with Add/Drop). A $25 late fee will be assessed.

MARCH 29
Last day for withdrawal with refund

MARCH 29
Last day to apply for graduation for Spring Quarter

MARCH 29
Last day to change from credit to audit

APRIL 20
Last day for removing temporary student status.

APRIL 21
Graduate record exam (at designated examination centers). Registration for examination must be made 4 weeks prior to this date.

APRIL 27
Deadline for withdrawal without grade penalty. Students may not withdraw from classes after this date.

MAY 18
Last day to remove an "I" earned last quarter

MAY 28
Memorial Day holiday (University-wide)

MAY 29
Classes resume

JUNE 1
Classes end for Spring Quarter

JUNE 4-7
Final examination period

JUNE 8
Commencement

JUNE 9
Grades due in Registrar's Office

JUNE 9
Academic year ends

* Resident Center Registration and Add/Drop dates precede registration and vary with individual centers. RESIDENT CENTER STUDENTS MUST CONTACT DIRECTORS OF THEIR CENTERS FOR ADVISEMENT AND REGISTRATION INSTRUCTIONS.
Summer Quarter 1979

- **MAY**
  - 17: Last day for receipt of regular undergraduate and graduate applications
  - 31: Last day for receipt of readmission applications

- **JUNE**
  - 9: Graduate record exam (at designated examination centers). Registration for examination must be made 4 weeks prior to this date
  - 11-14: Orientation and advisement for new freshmen and transfer students, and advisement for readmitted students not pre-advised
  - 14: *Registration by appointment for new and readmitted graduate, post-bacalaureate, undergraduate students. Student registration will close following the last appointment. Faculty and staff will register following the above appointment.
  - 18: Classes begin for Summer Quarter
  - 21: Last day to adjust class schedule (end of Add/Drop)
  - 21: Last day for late registration (late registration runs concurrently with Add/Drop). A $25 late fee will be assessed
  - 21: Last day for withdrawal with refund
  - 21: Last day to apply for graduation for Summer Quarter
  - 21: Last day to change from credit to audit
  - 4: Independence Day holiday (University-wide)
  - 5: Classes resume
  - 13: Last day for removing temporary student status
  - 20: Deadline for withdrawal without grade penalty. Students may not withdraw from classes after this date

- **AUGUST**
  - 10: Last day to remove an "I" earned last quarter
  - 24: Classes end for Summer Quarter. Final exam given at discretion of instructor
  - 24: Commencement
  - 27: Grades due in Registrar's Office

*Resident Center Registration and Add/Drop dates precede registration and vary with individual centers. RESIDENT CENTER STUDENTS MUST CONTACT DIRECTORS OF THEIR CENTERS FOR ADVISEMENT AND REGISTRATION INSTRUCTIONS.*
STATEMENT OF PURPOSE

Florida Technological University serves the people of Florida by providing undergraduate and graduate education in all general areas of study and in specifically selected technological and professional disciplines.

Baccalaureate degree programs are offered in business administration, education, engineering, general studies, humanities and fine arts, natural sciences, and social sciences. Master's degree programs are offered in each of the six colleges of the University. Doctoral programs are available in education through an agreement with Florida Atlantic University and in engineering through an agreement with the University of Florida.

In addition to offering a broad academic program on campus, FTU offers off-campus credit courses in locations throughout Central Florida. Off-campus credit courses are listed in the quarterly class schedule published by the University and are generally taught by regular faculty members. Non-credit conferences, institutes, seminars, workshops and short courses are scheduled both on and off campus to meet the educational needs of business, government, professional, and other groups from throughout Florida and the nation. Information on non-credit programs may be obtained by contacting the Office of Non-Credit Conferences and Institutes, Room AD 397, Florida Technological University.

INSTITUTIONAL PHILOSOPHY

Florida Technological University's philosophy is based upon two tenets: ACCENT ON THE INDIVIDUAL and ACCENT ON EXCELLENCE. The University believes in the individual worth of each person and especially encourages the RESPONSIBLE INDIVIDUAL who strives for EXCELLENCE in every activity.

Research is considered an important part of advanced study and FTU provides students with opportunities for research projects and independent study. Many projects involve community service and opportunities for students to experience real situations while receiving individual guidance from faculty.

Florida Technological University, in order to serve the community better, makes higher education easily available to the citizens of east-central Florida by operating off campus resident centers and by offering continuing education and special courses and conferences to the citizens of the area.

EAST CENTRAL FLORIDA AREA

FTU is located in the East Central Florida region with a population estimated at 1.3 million. The area is well endowed with a rich heritage of cultural, educational, industrial, and recreational activities. Cultural activities include a symphony orchestra, civic theatre, dinner theatres, art galleries, and museums. The beauty of the Orlando area is evidenced through its numerous parks and flower gardens. In addition to FTU, educational needs of the area are served through quality public school systems, public community colleges, and several privately supported colleges and schools. Recreational opportunities abound in the Orlando area.
THE CAMPUS

The campus of FTU, located 13 miles east of downtown Orlando, consists of 1227 acres of land; much of which is covered with pine, palm, cypress, cedar, and oak trees. Lake Claire, covering 40 acres and Lake Lee, covering 14 acres, contribute to the natural beauty of the campus. Since campus construction began in 1966, approximately $35 million has been invested in facilities and equipment including the library, classroom buildings, laboratories, residence halls, and student facilities. The childcare center was built with funds contributed through the Edyth Bush Charitable Foundation of Winter Park and FTU Student Government. Recreational facilities include lighted tennis and handball courts, a flag football-soccer field, a swimming pool, a golf driving range with putting greens, volleyball courts, and a baseball field. The campus currently serves approximately 10,000 students.

FTU’s four two-story residence halls accommodate 414 students—198 men and 216 women. Two of the residence halls are for women and two are for men. Each suite consists of double bedrooms (a limited number of singles), common living room and bath. Each suite is equipped with functional furnishings, in keeping with the living-study area design, central heat, air-conditioning and maid service. Each hall has laundry facilities, a vending machine room and a common social/study lounge for residents use. For more detailed information on campus housing please write to Director of Housing, Florida Technological University, P.O. Box 25,000, Orlando, Florida 32816.

RESIDENT CENTERS

Florida Technological University offers a number of upper division and graduate level courses at three off-campus Resident Center locations in Central Florida. These are the same courses as are offered on campus and carry the same credit as on-campus courses. Each center is staffed with a Center Director and full-time faculty. Contact the Resident Centers for information as to the current courses and program offerings.

FTU BREVARD RESIDENT CENTER
1519 Clearlake Road
Cocoa, Florida 32922
(305) 632-4127

FTU DAYTONA BEACH RESIDENT CENTER
215 South Clyde Morris Boulevard
Daytona Beach, Florida 32014
(904) 255-7423

FTU SOUTH ORLANDO RESIDENT CENTER
7300 Lake Ellenor Drive
Orlando, Florida 32809
(305) 855-0881

COOPERATIVE EDUCATION

Co-Op is a planned, balanced, education program for students who wish to “blend theory with practice” by combining their campus education with work experience.

The Co-Op Program is based on a format under which the student ordinarily alternates between quarters of study and quarters of employment. The student will be placed with business, industry, or a governmental agency in a work training assignment related to his/her academic field of study.

For further information about the Cooperative Education Program, write to Cooperative Education Office, Florida Technological University, Post Office Box 25000, Orlando, Florida 32816, or visit Suite 124 in the Administration Building.
ACCREDITATION

The graduate and undergraduate programs of the University are accredited by the Southern Association of Colleges and Schools, the official regional accrediting agency for educational institutions in the South.

In addition to the regional accreditation agencies, there are a number of scientific, professional, and academic bodies conferring accreditation in specific disciplines and groups of disciplines. Currently, the following areas have been approved by the agencies indicated. The College of Business Administration is accredited by the American Association of Collegiate Schools of Business (AACSB); Engineering Mathematics and Computer Systems, Environmental, Electrical, Industrial, and Mechanical program options in the College of Engineering by the Engineers' Council for Professional Engineers Development (ECPD); Medical Record Administration by the Council on Medical Education of the AMA; Respiratory Therapy by the American Registry of Inhalation Therapists (ARIT). All teacher education programs are fully accredited by the Florida State Department of Education.

FTU is listed in Report of Credit Given By Educational Institutions with an "A" Rating which means "Transcript of record given full value." This handbook, published by the American Association of College Registrars and Admission Officers, shows the acceptability of transfer credits based upon their (AACRAO) evaluation.

FLORIDA TECHNOLOGICAL UNIVERSITY FOUNDATION, INC.

Chartered in 1968, the FTU Foundation, Inc. is a non-profit, tax-exempt corporation receiving and disbursing private gifts for the betterment of the University as a whole. Its primary function is that of assisting the University financially in the student financial aid program, scholarships, and in institutional development.

Through the leadership of a 36-member Board of Directors, the Foundation encourages, solicits, receives, and administers gifts and bequests of property and funds for scientific, educational and charitable purposes. All for the advancement of Florida Technological University and its objectives.

The Foundation promotes and supports education by providing funds which are not received from public sources.

Contributions are deductible by donors as provided in Section 170 of the Internal Revenue Code.

UNIVERSITY LIBRARIES

Director: Lynn W. Walker, LR 427, Phone. 275-2564
Associate Director: Orlyn B. LaBrake, LR 427, Phone 275-2564

GENERAL INFORMATION

The University Libraries provide materials and services to support the instructional and research needs of the university. The collection now numbers some 300,000 volumes and about 5,000 periodical, newspaper and serial publications placed on open shelves to encourage browsing. The library is a depository for U.S. and Florida state documents.

The Audiovisual Services Section, located in the basement of the library, is available to all students, faculty and staff who desire to use the services available. A wide variety of audiovisual equipment, and a wealth of instructional materials such as films, audio tapes, records and filmstrips are available. In addition, a special room for previewing any of these materials is available.
The first floor of the Library Building contains an exhibit area, the circulation desk and the Instructional Media Center. The Reference collection, state and federal documents, and interlibrary loan are located on the second floor. On the third floor are found periodicals, microforms, reserve material, and the Technical Services division. The fourth floor contains the general book collection, special collections, administrative offices, and noise room with typewriters for student use. Study areas and photocopying machines for student and faculty use are located on all floors. During the school term the library operates on a full schedule of hours, including evenings and weekends. During vacation periods, a shortened schedule is maintained.

**READERS SERVICES**

**Assistant Director:** Bernard L. Foy, LR 210, Phone, 275-2485  
**Professional Staff:** Elaine T. Bazzo, Leonie Y. Black, Elba C. Grovdahl, Laurie S. Hodge, Phyllis J. Hudson, Elizabeth W. Lloyd, Theodore R. Pfarrer, Norbert St. Clair, June S. Stillman

The Readers Services division of the Library is responsible for the circulation of books and materials, development and maintenance of the special collections, and reference services. Professional librarians are available at all times in the Reference Department to provide assistance and advice in the use of the library, its materials and services, and instruction in its use. Interlibrary loan service is available to administration, staff, faculty, graduate and undergraduate students.

In an effort to have library services within reach of all its students, the FTU library maintains small collections of about 2,000 books at the university’s resident centers in Daytona Beach and South Orlando. Subjects of the collections vary depending on the courses offered at each center. Students at the Brevard Center receive a full range of library services from the Brevard Community College library.

Special services are provided for the handicapped. The microfiche catalog is made available to mobility-impaired students attending FTU and these students may check out microfiche readers for home use. Using the microfiche catalog, students can determine the books they need, and a call to the library will bring books to them at a convenient location on campus. The Florida Bureau of Blind Services has deposited talking book machines and cassette tape players, a talking calculator, and other similar equipment, in the library for the use of blind or partially-sighted students, and the library staff assists these students in reference and research projects.

**TECHNICAL SERVICES**

**Assistant Director:** John C. Sanderlin, LR 313, Phone, 275-2521  
**Professional Staff:** Karen A. Hitchcock-Mort, Cheryl G. Mahan, Mary Helen Moritz, Peter C. Rossi

The Technical Services division is in charge of the acquisition, cataloging and processing of all materials in the collection, and maintaining the card catalog. The FTU Library is a charter member of the Southeastern Library Network (SOLINET), which links some 100 libraries in the Southeast via telephone lines and interactive terminals, to a massive data base at the Ohio College Library Center (OCLC) in Columbus, Ohio. Through SOLINET, the FTU Library has access to the collections of all major libraries in the Southeast, as well as other regions which are serviced by OCLC—a total of some 900. When a library catalogs a book, the cataloging information is entered in the computer data base. When another library catalogs the same book, the cataloging information already entered by the previous library can be displayed on a terminal, and catalog cards printed automatically. The network also will show holdings for each of the libraries, making interlibrary loan between the libraries faster and more efficient, and also making it possible to avoid unnecessary duplication.
INSTRUCTIONAL RESOURCES

Director: Robert L. Arnold  LR 142, Phone, 275-2571
Assistant Director: David W. Retherford

The primary purpose of Instructional Resources is to improve instruction. In meeting both the academic and administrative needs of Florida Technological University, the department provides graphic, photographic, radio, and television production in addition to a wide range of consultative services in an effort to bridge the gap between technology and instruction. The Graphics area provides faculty members with the opportunity to have ideas and concepts visualized through the graphic artist's hands. The Photography area assists the faculty member in bringing variable perspectives of a broader world into the classroom. The Television area provides studio and remote facilities for the production and dissemination of a wide variety of instructional and informational materials. The Radio area provides audio booths for the production of original sound tapes that can be used as resource material or in conjunction with slides for programmed slide/tape presentations. To aid the faculty with their instructional objectives via media, a wide range of consultative services exist in the Instructional Development area. Assistance is provided during the production, dissemination, and administration of media-based courses and ensures the most efficient, effective, and economical uses of the available instructional technology.

UNIVERSITY BOOKSTORE

The University Bookstore, located in the basement of the Library Building, carries required textbooks, supplemental books, and associated supplies for all FTU courses. In addition, a complete line of school and art supplies, sundries, paperbacks, gifts, and other items of interest are available. A Customer Service Desk is provided for special orders such as class rings.

During the last three days of each quarter, the Bookstore has a "buy-back" period for used text books. Student I.D. cards must be presented for identification.
INTRODUCTION

The Vice President for Student Affairs is concerned with the education and welfare of students as affected by non-classroom aspects of the total University program; therefore, he coordinates and supervises the non-academic areas of student life. His goals include creating a favorable environment for student learning; personalizing the education process; encouraging self-discipline, self-direction, and purpose on the part of the individual student; and fostering respect and brotherhood among students and faculty. Assisted by members of his staff, the Vice President for Student Affairs administers programs involving orientation, personal counseling, housing, financial aids, health services, placement, student government, student organizations, Veterans Affairs and special activities. Students are invited to consult the staff of Student Affairs concerning any aspect of campus life.

ORIENTATION

The purpose of orientation at Florida Technological University is to acquaint new entering and transfer students with the various colleges and academic curricula and to assist them in understanding college life. Orientation for the student begins upon the indicated desire to enroll at FTU. Each student receives a number of communications from members of the faculty and administration, and subsequently from the student body, containing advice on academic life, student services, and other campus activities. Information is mailed to students indicating the date on which they are to report for orientation. During orientation new students meet members of the faculty, staff and student body. They also receive instructional information to facilitate registration.

HOUSING POLICY

I. Regularly enrolled single students paying registration fees for a minimum of nine quarter hours may apply for assignment to University residential units. Priority of assignment is given to current residents and new students admitted in good standing. Any single student applicant to the University may request and submit a Housing application on which he/she requests Housing and Food Service for a specific quarter. Priority of room assignments is based on the date of receipt of the completed application in the Housing Office. Applicants should CAREFULLY READ the application before submitting it with the $25 pre-payment to the Housing Office.

II. ALL HOUSING CONTRACTS ARE FOR HOUSING AND FOOD SERVICE, combining room and board, and requiring each resident student to participate in one (1) of several available meal plans.

INTERNATIONAL STUDENT SERVICES

The Division of Student Affairs offers basic services for students from other nations. These services include pre-arrival information, assistance in location housing, counseling on personal, financial, and cross-cultural communication matters, referral to appropriate University and community agencies for needed services, liaison with the Immigration and Naturalization Service, and other matters that occur from time to time. Contact the Student Affairs Office, Administration Building, 2nd floor, for further information.

STUDENT HEALTH SERVICE

The University is concerned with the physical and emotional health of the student as
well as the promotion of individual and general health in the University community. A Student Health Service is maintained on an outpatient basis for routine and emergency health needs, to promote health education, and to protect the Student Body from communicable diseases. The Service is staffed by medical doctors and registered nurses when classes are in session. Medical care in the students' living quarters is not provided. Every health free paying student is entitled to the benefits outlined in the Health Service brochure. Except for Workman's Compensation cases, faculty and staff will be seen only for emergency first aid on a fee for service basis.

Blood is available for students, staff, faculty and their immediate families by notifying the Student Health Services of such need.

Medical records are confidential communications and will be treated as such in so far as the law permits.

In the event of an on-campus emergency, contact University Police for assistance to the Student Health Service.
STUDENT FINANCIAL AID

PURPOSE

Florida Technological University subscribes to the principle that the purpose of financial aid is to provide assistance to students who, for lack of funds, would otherwise be unable to attend college. Financial aid is awarded according to each individual's need in relation to college costs. Awards may come from one or any combination of the following: scholarships, grants, loans, and part-time employment. Our financial aid staff is dedicated to the principle that each student should receive personal attention with complete confidentiality. Every effort is made to provide financial counseling by experienced, considerate personnel.

APPLICATION

Each student desiring to receive student financial assistance must annually submit a separate Florida Technological University Student Financial Aid Application. For information or an application, please contact Florida Technological University's Student Financial Aid Office or your counselor's office if attending school in Florida. For your application to be considered on time, you must submit it between December 15 and March 1 for the academic year beginning the following September. All applications received after March 1 will be accepted conditionally. In addition to the FTU application, parents or guardians or the independent student must complete a financial statement. Upon completion, this statement should be mailed directly to the College Scholarship Service or the American College Testing Service. The fact that a student is married does not preclude parental support. These forms may be obtained from your high school or junior college counselor or from this office. Receipts of an award does not automatically renew an application for subsequent years. Consideration for assistance is based on availability of funds and the parents' or student's financial condition. The amount of available funds from federal, state, and local sources is not always known, therefore, some awards are extended on a tentative basis initially. If you receive assistance from sources other than the Student Financial Aid office, your award may be adjusted. Applicants who fail to notify this office of assistance from other sources are subject to complete withdrawal of aid.

ESTIMATED 1978-1979 STUDENT BUDGETS

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*Upper level students, add $23/quarter

OUT-OF-STATE FEES: additional $23 per credit hour for lower level courses, $35 per credit hour for upper level courses

** Each additional dependent: $780
FINANCIAL ASSISTANCE PROGRAMS

Available at Florida Technical University

LOANS

FEDERALLY INSURED STUDENT LOAN PROGRAM (GUARANTEED STUDENT LOAN PROGRAM): This federally sponsored program provides insurance for long-term, low interest loans made by authorized lenders such as banks, savings and loan associations, credit unions, pension funds and insurance companies. The maximum loan available for undergraduate or vocational students is $2000 per academic year or $7500 during the undergraduate studies and $10,000 for graduate studies. Any student whose adjusted family income is less than $25,000 will qualify for federal interest benefits. However, the maximum loan may never exceed the cost of education less other financial aid received. For students eligible for interest benefits, the federal government will pay to the lender the total interest due prior to the beginning of the repayment period. Applications for this loan may be obtained from the Student Financial Aid Office.

FLORIDA INSURED STUDENT LOAN PROGRAM: This combined State of Florida, federal government program provides long-term, insured loans to students who have made application through the Student Financial Aid Office and have adjusted family incomes of less than $25,000. The maximum amount of a loan for an academic year is $2000. Applicants must be U.S. citizens and must have been bona fide residents of Florida for one year. Students must be admitted to FTU in good standing and must maintain normal progress.

LAW ENFORCEMENT EDUCATIONAL LOAN PROGRAM: Applicants who are full-time students and who are majoring in Criminal Justice, may apply for these long-term loans which carry a 7% simple interest rate per annum which are repayable over a maximum of a 10 year period. Service as a full-time officer or employment with a public funded law enforcement agency will cancel the principal amount of the loan plus interest at the rate of 25% per annum for each completed year of employment in law enforcement. The student must complete the following application forms available from the Financial Aid Office: Faculty-advisor interview certification, FTU application for financial aid, and the LEEP 3 student note.

NATIONAL DIRECT STUDENT LOAN PROGRAM: This provides a long-term, low interest (3% simple interest) program of loans to students admitted to the university who show proven financial need and are in good standing. All recipients of this loan are required to arrange an exit interview with the University Student Loan Officer during their last quarter at the University. Repayment of these funds begins twelve months after attending classes for at least half time study, and may extend over a ten year period. Assignment in the Armed Service, Peace Corps or Vista lasting up to three years, allows deferment for repayment of principal and interest.

STUDENTS REGENT FEE LOAN: This long-term, institutional loan, authorized by the Board of Regents, utilizes student fees and is administered by the Financial Aid Office. Students who have a proven financial need are eligible to apply for these funds. Repayment must begin six months after the borrower graduates or ceases to be a full-time student.

UNIVERSITY SHORT-LOAN: This short-term loan (1 to 6 months provides assistance to students who have an interim financial aid problem (i.e. Florida Insured Student Loan application in process or V.A. claim problems). Payment is to be made on the due date as stated on the loan contract. A one percent administrative charge will be assessed.
SCHOLARSHIPS

The Student Financial Aid Office administers all scholarships which are processed through the University. Students selected for this type of award must have a grade point average 3.5-4.0. Thus, qualified students are eligible for consideration to receive the following types of awards:

COLLEGE AWARDED SCHOLARSHIPS: The individual colleges assign funds to enrolled students according to grade point average. Application should be made through the department and/or dean.

CONCURRENTLY AWARDED SCHOLARSHIPS: These require a student to have financial need and to be enrolled in a specific study area. Application may be made through Student Financial Aid; however, the final choice is usually made by the donor.

STUDENT FINANCIAL AID AWARDED SCHOLARSHIPS: These funds are assigned to Student Financial Aid for awarding on a general basis to students with a proven financial need. Application requires either a Parent’s Confidential Statement or a Student Financial Statement.

AGENCY AWARDED OR INSTITUTIONALLY AWARDED SCHOLARSHIPS: These scholarships are awarded by various business firms and community organizations. The Student Financial Aid Office is responsible for disbursing the funds as required by the donor. Application must be made directly to the agency or institution which offers the scholarship.

GRANTS

BASIC EDUCATIONAL OPPORTUNITY GRANT PROGRAM: This federal program provides assistance to students who have exceptional financial need. Under current law, the maximum awarded funds under this program cannot exceed $1400. A minimum grant of $200 may be awarded to eligible students. Availability of the funds for the program, the family contribution and the cost of the student's education determine the amount of the grant, which cannot exceed one-half the cost of the student's education. Application forms are available in the student Financial Aid Office.

FLORIDA STUDENT ASSISTANCE GRANT: This grant program, sponsored by the State of Florida, is designed to provide assistance for qualified students who show exceptional financial need. Priority in making awards from available funds is given to entering freshmen, junior college transfers, and other applicants in the order stated. A separate application and financial need analysis must be processed to the State Department of Education in Tallahassee.

LAW ENFORCEMENT EDUCATION GRANT: This grant program, which awards funds to in-service law enforcement officers, may provide funds up to the amount of fees each quarter. It is restricted to students who are majoring in Criminal Justice and have been accepted into the program. Students may be part-time or full-time and do not have to establish financial need as required in most other programs.

NON-FLORIDA TUITION WAIVER: Non-Florida residents possessing skills or abilities which comprise a positive contribution to the University environment may have their tuition waived through the Board of Regents. These funds are awarded on a quarterly basis by the individual colleges. Anyone requesting this type assistance should contact the Dean of his college in writing, and complete a general financial aid application.

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT PROGRAM: Qualified students who are of exceptional financial need may receive assistance under this federally funded program. Applicants must need and agree to accept an equivalent amount of matching funds from sources such as scholarships, loans, and employment
programs. Applicants must be accepted for enrollment or be in good standing as full-time undergraduate students. The recipients must be U.S. Citizens or must live in the U.S. for other than a temporary purpose, and must intend to become permanent residents. Students under this program must maintain normal progress to be considered for additional funds.

EMPLOYMENT

COLLEGE WORK STUDY PROGRAM: This federally sponsored student employment program provides funds for students who are enrolled full-time, who show evidence of exceptional financial need and who are capable of maintaining good academic standing while employed under the program. The program is designed to allow students to pay part of their educational expenses by working on campus, up to 20 hours per week, while classes are in session. Subject to availability of funds, students may work up to 40 hours per week during vacation periods and summers.

ON-CAMPUS PART-TIME EMPLOYMENT (OPS): This is an institutionally funded work program designed to provide part-time employment on campus, with no prerequisite of financial need. Application for this type employment may be made through the individual departments or the Student Financial Aid Office.

PLACEMENT CENTER

Campus interviews and employment contracts are essential aspects of the Placement Center. The provision of these services requires the development of student personnel files and resumes, therefore, seniors are urged to register with the Placement Center three quarters prior to graduation.

All students are invited to take advantage of the career counseling services offered by the Center, and to avail themselves of off-campus, part-time and summer employment opportunities.

DEVELOPMENTAL CENTER

The Developmental Center offers a professional staff of counselors to aid students in selecting vocational-educational objectives, overcoming learning difficulties, solving problems of personal-social adjustment, developing speech or hearing skills and dealing with marital or other relationship problems. A full range of tests is available along with an occupational library, developmental reading and study skills training, and a speech and hearing service.

Any student may request the assistance of the Center whenever he feels the need. He might, for example, desire increased understanding of himself and his relationship with others or he might seek to gain additional satisfaction from his learning experiences. Tests are often used to help the individual student evaluate his own interests, aptitudes, and abilities. The services of the Center are voluntary and all aspects of counseling are confidential.

STUDENT ACTIVITIES

Personal development may, in part, be enhanced through informed, experienced, dedicated University and community participation. Frequently, activities are referred to as "extracurricular," but at Florida Technical University student activities are regarded as a part of the total educational program, a supplement to the individual student's academic program. The University, through student cooperation and with the assistance of student organizations, sponsors a variety of cultural and entertainment programs which will contribute to the student's academic, recreational, and cultural activities. Additionally, ample opportunity to become a member of occupational, professional, social, and honorary organizations is provided. The student plays an im-
important role in determining how much student organizations enhance personal development. It is the desire of the University to appeal to the interests of students and to provide opportunities for students to become acquainted with fellow students and faculty members.

STUDENT GOVERNMENT

The purpose of the Student Government at Florida Technical University is to represent student opinion; advance the cause of students both socially and academically; promote communication, cooperation and understanding among students, faculty, and administration; suggest improvements necessary for the welfare of the students; and to insure that Student Government shall continue to be used as a democratic instrument of change at FTU.

The Student Government of FTU represents the interests of Students through its executive and legislative branches. The Student Senate is composed of representatives from every college and class. In addition to these elected offices, there are many openings available for appointed offices or on Student Government committees. By active participation in Student Government, or by voicing opinions and ideas through representative legislators, a student may gain valuable experience in the democratic processes—its freedoms and responsibilities. Students interested in working with the Student Government may obtain information from any member of Student Government or from the Office of Student Affairs. Student Government offices are located in the Village Center.

OFFICES OF DEAN OF MEN AND DEAN OF WOMEN

Students are urged to take advantage of the many services and educational programs available beyond the classroom. These services and programs are provided to facilitate learning and supplement academic instruction. The Dean of Men and Dean of Women are available to help students in their attempts to become familiar with these services and activities and to become involved in educational experiences beyond the classroom. The Dean of Men and Dean of Women plan and assist in the development of University programs that provide for the personal, social, and academic adjustment of students. They counsel students for personal, academic, financial and social problems, and as necessary refer students to specialized, professional services. The Deans are the primary contact for students seeking information or assistance in non-academic areas of university operations.

The Office of Handicapped Student Services provides information and orientation to campus facilities and services, counseling, referral to campus services and assistance with registration for students who are handicapped. A separate handbook including a campus map showing accessible building entrances and curb ramps is available upon request from the Office of Handicapped Student Services. Information and assistance are available for faculty members working with students who are handicapped.

Services rendered under The Special Services Program are designed to assist students who have academic potential, but who may lack adequate secondary school preparation or who may have special circumstances hindering their academic success. Working closely with the Developmental Center, the Program arranges for students to enroll in the Center’s special classes in English, mathematics and reading. Special Services also arrange for and provides academic, career and personal counseling. In addition, the Program renders referral to outside agencies that might help students resolve personal and other non-academic problems related to academic success. The goal of the Program is the retention and graduation of students who need this kind of support.
CHILD CARE CENTER

The Edyth Bush Charitable Foundation, through a grant, has made possible the construction of an on-campus child care center. The child care program is designed as a student service which will enable the University to assist student parents by providing complete child care while parents attend class. The center, staffed by personnel experienced in early childhood development, is available to students in academic programs requiring internships and observations. For further information contact the Office of the Dean of Women.

OFFICE OF VETERANS' AFFAIRS

The Office of Veterans' Affairs is a "one-stop" center for students who are utilizing veterans' educational benefits in order to further their education. The Office has a professional staff augmented by student veterans to assist in providing information concerning entitlements, filing claims to the Veterans Administration, and certifying enrollment at the University. The office also provides information and referral services for personal and academic problems. All veterans and dependents are urged to contact the office early in the process of applying for admission to FTU.

VILLAGE CENTER

The center of student life on the Florida Technological University campus is the Village Center, a campus-community facility serving students, faculty, University patrons, alumni and guests. It contains food service facilities, conference rooms, art gallery, games area and lounge areas where the student may relax during his leisure moments. Offices for student organizations are located in the Village Center. Under the administration of the Director of the Village Center, many student activity programs are conducted for the social, cultural and recreational interests of all students.

CAMPUS ATHLETICS

Intramural Sports, composed of team, dual, and individual competition on campus are organized into leagues representing students, staff, and faculty. Tournaments are conducted to determine top teams in each of a variety of activities with trophies awarded to winners. Sports in the intramural program range from flag football and 3-man basketball for male students to powderpuff football and volleyball for the women. A total of 22 sports are offered for men and women during the fall, winter and spring quarters with an additional program in the summer.

Extramurals as the name implies, are a step up in the sports program. Activities are not limited to on-campus competition and are open to students only. Club teams compete regularly with teams from other campuses in and out of the State of Florida. Each sports program has a qualified coach and also serves as a basis for possible inclusion in FTU's varsity program. For men, there are cross country, golf, crew, archery, weightlifting and swimming. For women, there are basketball, swimming, tennis, crew and archery. Additional information on this sports program can be obtained from the Intramural and Extramural Office.

The Intercollegiate Athletic program includes five varsity sports for men and two for women. Men compete in baseball, basketball, soccer, tennis and wrestling. Women compete in volleyball and softball. At least one of these sports is engaged in varsity competition during each quarter of the regular academic year. FTU teams compete against some of the leading institutions of the southeast region of the U.S., and have attained national ranking in NCAA Division II competition. FTU athletes have received national and regional recognition for their achievements. FTU is a member of the new Sunshine State Conference.
STUDENT CONDUCT

Students are subject to federal and state laws and local ordinances as well as regulations prescribed by Florida Technological University and the Florida Board of Regents. The breach or violation of any of these laws or regulations may result in judicial or disciplinary action.

When a student is involved in an offense resulting in criminal charges, prior to his admission, the circumstances of the case may be reviewed by the appropriate Student Affairs Committee to consider the student's eligibility for admission to the university as well as participation in extracurricular activities.

CLASSROOM RESPONSIBILITY

Students are responsible for maintaining a classroom decorum appropriate to the educational environment. When the conduct of a student or group of students varies from acceptable standards to such an extent that normal classroom procedures are interfered with, the instructor has the authority to remove the offending party from the room.

CONFIDENTIALITY OF STUDENT RECORDS

The University policy which governs the confidentiality and access of student records is provided in Student Rights and Responsibility (Student Records). The policy explains in detail the procedures to be used by the institution for compliance with the Family Educational Rights and Privacy Act of 1974 as amended. Copies of the policy may be obtained from the Office of Student Affairs. The Office of Student Affairs also maintains a directory of records which lists all educational records maintained on students by the University.
SCHEDULE OF FEES

A student's basic expenses at the University will be for tuition fees, room and board, textbooks, other instructional supplies, and miscellaneous items.

Required fees are established by the Board of Regents and the Florida State Legislature and are subject to change without notice.

It is required that all University fees be paid at or before regular registration time. University policies do not permit deferring fees or paying by installments during the quarter. Failure to pay fees on or before due date can result in a $25.00 late registration fee.

The following schedule applies to all Florida Technological University students:

**General Fees and Costs**

A. Application fee (required with all applications for admission to the University and not refundable) ..................................................... $15.00

B. Registration Fees per quarter for campus, centers, and continuing education courses. Minimum registration of one credit hour (at the level the student is classified) must be charged for students registering for zero hours (co-op student on work assignment, applicant for graduation during the quarter that student is not registered, etc.)

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C. Room and Board (required of student living in University residence halls)

|                      | per quarter                      | $400.00-$450.00       |
|                      | Charge for late payment          | $15.00                |

D. Books and supplies (estimated) per quarter ........................................ $50.00

E. Late Registration Fee—not refundable (for students who register during late registration periods or who fail to pay their full fees by the established deadline.) ........................................ $25.00

F. Vehicle Registration (required of everyone operating a motor-powered vehicle on campus) per calendar year for full-time, part-time students, and courtesy students from other institutions.

Student's fee ........................................ $10.00
G. Reinstatement Fee—not refundable (for all students whose registration has been cancelled and reinstatement has been approved) ........................................ $25.00
  This fee is in addition to the late registration fee.

H. Student Health Fee—not refundable (per quarter)
  Assessed to all students except those enrolled exclusively in Continuing Education courses. This fee must also be waived for employees under the fringe benefit plan, for Intern Participation holders, and for non-degree applicants. Students on training session under the Cooperative Education Program will be required to pay the Student Health Fee. University employees who use the Tuition Fee Waiver for class attendance may not elect to pay the Student Health Fee, regardless of the number of quarter hours taken ................................................................. $10.00

I. Intern Participation Holder ......................................................... $2.85/hr.

CHECKS

The University will accept personal checks for accounts due to the University. Each student is urged to make his own financial arrangements through his choice of commercial banks. The University Cashier will cash personal checks not exceeding $50.00. The University is required to collect a $5.00 Service Fee for any check, draft or order, which may be returned by the bank for any reason and future check cashing privileges will be denied.

REFUND OF FEES

A refund of fees will be made under certain conditions upon presentation at the Cashier’s Office of a Certification of Withdrawal issued by the Registrar. No refunds will be made under this policy except upon proper application.

A. A FULL REFUND when:
  1. Withdrawal is made before end of the Add/Drop period.
  2. Cancellation of the course by the University.
  3. Student is denied admission to an offered course by the University for whatever reason.

B. Full refund less 2.85 per hour when:
  1. Involuntary call to active military duty.
  2. Death of student or death of an immediate family member.
  3. Student contracts an incapacitating illness of such duration and severity as to prevent the successful completion of the academic program for the term enrolled, as confirmed in writing by a physician.
  4. Exceptional circumstances.

PAST DUE ACCOUNTS

Any, and all, financial obligations to the University must be met by the student if "good standing" is to be maintained. Failure to meet such obligations can result in the withholding of grades and transcripts, and denial of registration and readmission to the University. The services of a professional collection agency; and recourse to the courts may also be invoked if deemed necessary by the University Comptroller. All costs of collection, including attorney’s fees shall be borne by the debtor.
ADMINISTRATIVE AND ACADEMIC POLICIES

ADMISSION REQUIREMENTS

The following classes of applicants are eligible for consideration as candidates for admission to credit courses. It should be understood, however, that minimum requirements are given and that admission to the university is a selective process. While the satisfaction of minimum requirements does not automatically guarantee admission, students who meet them are normally admitted. The state universities in Florida are allowed to admit a limited number of beginning freshmen as exceptions to normal admission requirements. The Board of Regents regulations state that “no more than 10% of the projected freshman class may be admitted as exceptions.” FTU admits students under this provision if there is evidence indicating a reasonable probability that the applicant can satisfactorily complete a program for which he or she is seeking admission.

FRESHMAN APPLICANTS (First College Attended)

Eligibility is subject to satisfactory receipt and review of all items requested in the admissions process. All applicants must have earned a minimum of 12 high school academic units (i.e., from the areas of English, foreign language, mathematics, science, social studies, or history.)

Students eligible to apply for admission to the University are:

1. Graduates of Accredited Florida High Schools who receive no unfavorable character recommendations from officials of their high schools, have an overall average of “C” or better for all academic subjects, and have earned a minimum score of 800 on the SAT or 19 on the ACT (or 300 on the Florida Twelfth Grade Test—now discontinued).

2. Graduates of Accredited Non-Florida High Schools who receive no unfavorable character recommendations from officials of their high schools, have grades placing them in the upper 40 percent of their graduating classes and have earned a minimum score of 800 on the SAT or 19 on the ACT.

3. Graduates Possessing State High School Equivalency Diplomas based upon General Education Development testing and who have acceptable high school records for the portion attended and have a minimum score of 800 on the SAT or 19 on the ACT.

Graduates Who Meet Requirements in the first two categories Above, But Who Were Graduated from a Regionally Unaccredited High School will be considered on an individual basis. Such applicants may be admitted on a “provisional” basis. By obtaining a 2.0 GPA (C average) or better at the end of the first quarter of attendance, the provisional status will be removed. Earning less than a “C” average for the first term would result in academic probation status.

Graduates Who Do Not Meet These Entrance Requirements and Are Considered Borderline Admission Cases are referred to the University Admissions and Standards Committee for review. It may be recommended that a student attend a Florida Community College before reapplying to FTU.
COLLEGE TRANSFER APPLICANTS

An undergraduate student transferring from another college or university must (1) have a minimum GPA of 2.0 ("C" average) in all college work previously attempted, (2) be in good standing at the last institution attended, and (3) have a minimum GPA of 2.0 at the last institution attended.

Should applicants have less than 2 years (90 quarter hours or 60 semester hours) of transferable college credit, they must meet the University's freshman entrance requirements and, therefore, furnish high school records and satisfactory test scores.

Credits in which an applicant has achieved a grade of "D" or better are transferable. Refer to page 36 for "D" grade transfer policy.

No credit will be awarded for college-level GED tests, for courses given without a grade, nor for courses carrying grades but not credit hours.

Completed military service school courses may be evaluated on the basis of the recommendations of the American Council on Education when official credentials have been properly presented. Credit may be granted when courses are equivalent to those offered by the University. However, recommendations by the A.C.E. are not binding upon the University, and application for service school course credit should be made at the time of admission.

Graduates from other accredited four-year institutions who apply for admission to work toward a second undergraduate degree must meet the regular requirements of the University (See Undergraduate Degree Requirements, page 40 and Second Baccalaureate Degree, page 50). A baccalaureate degree or higher from another accredited four-year institution satisfies the Basic and Advanced Environmental Studies Program requirements.

Transfer students from Florida State Community Colleges or Universities may satisfy the Basic Environmental Studies Program requirements by completing prior to transfer, the general education program prescribed by the community college or university. Transfer applicants with incomplete General Education Programs (FTU Environmental Studies Program) from state institutions will have their credits evaluated on an individual basis.

1. Florida State Community College Transfers. Admission to the University is normally granted to any graduate of a Florida community college who has completed the Associate of Arts program and graduated with a 2.0 GPA ("C" average) based upon all work attempted.

2. Private Colleges and Out-of-State Institutions. The general education program credits of transfer applicants from private junior and senior colleges and out-of-state institutions will be evaluated on an individual basis.

3. Unaccredited Colleges or Universities. Transfer applicants who otherwise meet all requirements, but who enter from a "regionally" unaccredited college or university, will be considered on an individual basis. Admission may be granted on a provisional, probationary and/or non-degree basis depending upon the applicant's record. "Validating" credit may be required before transfer of credit is considered.

Regardless of where the student transfers from—a Florida Community College, another Florida University, or another college or university outside the state, it is the student's responsibility to submit the necessary petition(s) to the college of major in order to determine which courses will transfer with regard to degree progress at FTU. Each College has different petition procedures but generally the petitioning should be done during the second full quarter of the student's residency at FTU in order that the
accepted transfer courses are clearly understood by the student and the faculty advisor early in the student’s program.

Final determination regarding applicability of credits accepted in transfer toward the fulfillment of degree requirements resides with the College in which a student is enrolled.

The Admissions and Standards Committee membership is composed of representatives from the faculty, the student body, the Student Affairs’ Office and the Admissions Office. This committee normally meets weekly to review marginal cases and to consider the appeals of applicants.

ACCREDITATION

For the purposes of this Bulletin “Accredited Institutions” means those institutions accredited by the six regional associations, vis:

New England Association of Schools and Colleges
Middle States Association of Colleges and Secondary Schools, Commission on Institutions of Higher Education
North Central Association of Colleges and Schools, Commission on Colleges and Universities
Northwest Association of Secondary and Higher Schools, Commission on Higher Schools
Southern Association of Colleges and Schools
Western Association of Schools and Colleges, Accrediting Commission for Senior Colleges and Universities and Accrediting Commission for Junior Colleges

APPLICATION DEADLINE

Students are encouraged to apply several months in advance, and applications will be accepted up to a year prior to the start of the term desired. The application deadline date for each term is approximately five weeks prior to the start of the quarter. Please consult the catalog calendar for the exact date. Readmission applications and special non-degree registrations will be accepted by the Records Office after the deadline date.

RECORDS DEADLINE—Supporting Documents

All supporting admissions documents (e.g., transcripts and test scores not recorded on official transcripts) should be received by the Admissions Office no later than 15 days preceding the first day of classes. In some cases applicants may be allowed to register on a temporary basis (without all records) assuming it can be determined from available records or consultation with the students that they appear admissible. Records of Temporary Students must be received within four weeks (20 class days) from the first day of classes, or the students will stand the risk of being withdrawn at the discretion of the University Registrar and no fees will be refunded.

RECORDS—Validity of Documents

All supporting admissions documents must be received directly from the issuing institution or testing agency and if the University finds that an applicant has made a false or fraudulent statement or a deliberate omission on his application, residency affidavit, health report, or an accompanying document or statement, that applicant may be denied admission. Should the student be enrolled when such fraud is discovered, he may be immediately withdrawn (with no refund), further enrollment denied, and credit
earned and any degree based upon such credit invalidated. Actions for this type of offense will be handled administratively by the University Registrar’s Office after notification to the alleged violator and hearing by that office.

**READMISSION**

Students not in attendance during an academic quarter (exclusive of the summer term) must submit an application for readmission and such other information as may be required, including transcripts of courses attempted in the interim.

Readmission of a suspended (disqualified or excluded) student is never automatic. If a student has been disqualified or excluded, he/she must be readmitted by action of the University Admissions and Standards Committee after review of the student’s total record.

Any former student who withdrew with a cumulative or overall grade point average of less than 2.0 (C) and who is considered readmissible, will be readmitted on academic warning or academic probation as appropriate.

**REACTIVATION**

A student who has submitted an application for admission to FTU but never attended may reactivate the original application for a period of one year. The deadline date for reactivation is the same as the date for new applications for admission. (See calendar.)

**TEMPORARY STUDENTS**

Any student who applied before the application deadline date and is permitted to register and attend classes without a complete admission file is granted a maximum of four weeks (first 20 class days), to furnish all required records. Incomplete records or records indicating ineligibility will result in cancellation of the student's registration. No fees are refundable after the first week of classes.

**TRANSIENT STUDENTS — CONCURRENT ENROLLMENT**

**FTU Students.** An FTU degree-seeking student who wishes to earn credit at another college or university for transfer back into his degree program must obtain prior approval for specific courses from the Dean or Department Chairman of his respective college and the Registrar of FTU. Credit earned without this transient approval may not be accepted. Transient forms are available in the Records Office.

**Students from Other Colleges or Universities.** Students in good standing with a 2.0 overall academic average in any accredited college or university and wishing to enroll for one quarter at FTU may be considered for admission as a transient. Such enrollment terminates at the end of one quarter and does not presuppose regular acceptance by any college or department of the University. A transient form indicating the parent institution's willingness to accept the credits earned and that the student is in good standing is required. This statement protects the student and serves as a basis for admission in lieu of transcripts. Transient forms are available in the Admissions Office.

**AUDIT STUDENTS**

In order to audit any course, permission of the instructor is required. A new applicant desiring only to audit a course must complete an application and be accepted as a non-degree or regular student. All students register to audit a course at the end of Late Registration only. A student may change from credit to audit only during the Add/Drop period.
Instructors will have the option of changing an audit grade (X) on the final grade roll to Withdraw (W) if the student fails to honor his/her audit commitment by not attending class.

NON-DEGREE STUDENTS

An individual may enroll as a non-degree seeking student using a regular application form. Although such students do not have to meet all of the regular admission requirements of degree seekers, there must be some satisfactory basis for acceptance.

In order to change to degree-seeking status, a non-degree student must provide all academic records required of degree seekers, including testing. A student may establish a basis for changing to degree status by completing 24 quarter hours of work here with a 2.0 FTU GPA or above. Such students should be cautioned that no more than 45 quarter hours earned as a non-degree student can be counted towards a degree. Change of status is not automatic. Degree status must be applied for through the Admissions Office. The student's total record will then be reviewed and a decision made.

INTERNATIONAL STUDENTS

Undergraduate applicants should refer to the Admissions Requirements Section of this Bulletin and graduate applicants to the Graduate Studies Section. In addition, the following is required for admission:

1. International student applications, undergraduate and graduate, must be received at least three months prior to the desired term.

2. Applicants whose native language is not English must submit satisfactory scores on the Test of English as a Foreign Language (TOEFL).

3. Certified English translation of official records showing grades or marks of courses taken, range of passing and maximum marks, and noting successful completion of schooling must be submitted.

4. Applicants must file a financial statement confirming availability of finances for each year of study.

Any additional information or records requested must be furnished before admissions can be final.

MEDICAL HISTORY REPORT

A new student must furnish a Medical History Report on the approved university health form before registration will be allowed. The Medical History Report form will be mailed to the applicant with receipt for the Application for Admission.

FLORIDA RESIDENCE

(1) For the purpose of assessing registration and tuition fees, a student shall be classified as a "Florida" or "non-Florida" student.

(a) A "Florida student" is a person who has domicile in and who shall have resided in the state of Florida for at least twelve (12) consecutive months immediately preceding the first day of classes of the academic term in which the student enrolls. In determining residency, the university may require evidence such as voter registration, driver's license, automobile registration, location of bank account, rent receipts or any other relevant materials as evidence that the applicant has maintained continuous residency. Physical presence for the entire twelve-month period need not be required so long as the conduct of the student, taken in total, manifests an intention to make Florida his or her permanent dwelling place. If such student is a minor, it shall mean that the parent or parents, or legal guardian of the student shall have domicile in and have resided in the state of Florida for the
period stated above. "Florida student" classification shall also be construed to include students who hold an immigration and Naturalization Form 1-151, Resident Alien Registration Receipt Card, or Cuban Nationals or Vietnamese Refugees who are considered as Resident Aliens, provided such students meet the residency requirement stated above and comply with subsection (2) below. The burden of establishing facts which justify classification of a student as a resident and domiciliary entitled to "Florida student" registration rates is on the applicant for such classification.

(b) In applying this policy:
1. "Student" shall mean a person admitted to the institution, or a person allowed to register at the institution on a space available basis.
2. "Minor" shall mean a person who has not attained the age of 16 years, and whose disabilities of minority have not been removed by reason of marriage or by a court of competent jurisdiction.
3. "Domicile" for fee paying purposes shall denote a person's true, fixed, and permanent home and place of habitation. It is the place where the applicant lives and remains to which he expects to return when he leaves, without intent to establish domicile elsewhere.
4. "Parent" shall mean a minor's father or mother, or if one parent has custody of a minor applicant, it is the parent having court assigned financial responsibility for the education of the student; or if there is a court appointed guardian or legal custodian of the minor applicant, it shall mean the guardian or legal custodian.
5. The term "dependent student", as used in this rule is the same as a dependent as defined in sections 151 (e) (1) (2) (3) and (4) of the Internal Revenue Code of 1954. A copy of these provisions in the Internal Revenue Code of 1954 is incorporated in this rule by reference.
6. A "non-Florida" student is a person not meeting the requirements of subsection (a) above.
(2) In all applications for admission or registration at the institution on a space available basis, a Florida applicant, or, if a minor, the parent or legal guardian of the minor applicant, shall make and file with such application a written statement, under oath, that the applicant is a bona fide citizen, resident, and domiciliary of the state of Florida, entitled as such to classification as a "Florida student" under the terms and conditions prescribed for citizens, residents, and domiciliaries of the state of Florida. All claims to "Florida student" classification must be supported by evidence as stated in 6C-7.05(1) if requested by the registering authority.
(3) A "non-Florida student" or, if a minor, his parent or guardian, after having been a resident and domiciliary of Florida for twelve (12) consecutive months, may apply for and be granted reclassification prior to the first day of classes of any subsequent term; provided, however, that those students who are non-resident aliens or who are in the United States on a non-immigration visa will not be entitled to reclassification. An application for reclassification as a "Florida student" shall comply with provisions of subsection (2) above. An applicant who has been classified as a "non-Florida student" at time of original enrollment shall furnish evidence as stated in 6C-7.05(1) to the satisfaction of the registering authority that the applicant has maintained continuous residency in the state for the twelve months required to establish residence for tuition purposes. In the absence of such evidence, the applicant shall not be reclassified as a "Florida student." In addition, the application for reclassification must be accompanied by a certified copy of a declaration of intent to establish legal domicile in the state, which intent must have been filed with the Clerk of the Circuit Court, as provided by Section 222.17, Florida Statutes. If the request for reclassification and the necessary documentation is not received by the registrar prior to the last day of registration for the term in which the student intends to be reclassified, the student will not be reclassified for that term.
(4) Unless evidence to the contrary appears, it shall be presumed by the registering authority of the institution at which a student is registering that:
(a) The spouse of any person who is classified or is eligible for classification as a "Florida student" is likewise entitled to classification as a "Florida student". This provision will not apply in the case of students who are non-resident aliens or who are in the United States on a non-immigration visa.
(b) If an applicant's eligibility for classification as a "Florida student" is based on the residency of the spouse, the spouse shall make and file with the application a written statement under oath, that said person is the spouse of the applicant and a bona fide citizen, resident and domiciliary of the state of Florida, entitled as such to classification as a "Florida student."
(c) No person over the age of 18 years shall be deemed to have gained residence while attending any educational institution in this state as a full-time student, as such status is defined by the Board of Regents, in the absence of a clear demonstration that he has established domicile and residency in the state, as provided under subsection (3) above.
(d) Any "Florida student" who remains in the state, after his parent who was previously domiciled in Florida or stationed in Florida on military orders removes from this state, shall be en-
titled to remain classified as a "Florida student" so long as his or her attendance at a school or schools in Florida shall be deemed "continuous." However, such student claiming continuous attendance must have been enrolled at a school, college or university in Florida for a normal academic year in each calendar year, or the appropriate portion or portions thereof, from the beginning of the period for which continuous attendance is claimed. Such a student need not attend summer sessions or other such intersession beyond the normal academic year in order to render his attendance "continuous."

(5) Appeal from a determination denying Florida status to any applicant therefor may be initiated after appropriate administrative remedies are exhausted by the filing of a petition for review pursuant to Section 120.68 F.S. in the District Court of Appeal in the appellate district in which the institution maintains its headquarters or where a party resides.

(6) Any student granted status as a "Florida student," which status is based on sworn statement which is false shall, upon determination of such falsity, be subject to such disciplinary sanctions as may be imposed by the president of the university.

(7) Special Categories—The following categories shall be treated as Florida residents for tuition purposes if adequate documentation is provided:
   
   (a) A member of the Armed Services of the United States who is stationed in Florida on active duty pursuant to military orders, the spouse and dependent students.

   (b) A veteran of the Armed Forces of the United States of America with twenty (20) or more years of active military service, including the spouse and dependent students of such veteran's immediate family, provided that the veteran is in Florida at time of retirement or moves to Florida within one year following retirement and files a declaration of Florida domicile.

   (c) Full-time elementary, secondary, and community college faculty members under current teaching contracts in the state of Florida, and their spouses and dependent students.

   (d) Full-time faculty, administrative and professional and career service employees of the University System and their spouses and dependent students.

   (e) A student certified by his respective state for participation in the Academic Common Market Program of the Southern Regional Education Board who is enrolled in a program approved by the Florida Board of Regents.

   (f) Florida domiciliaries living in the Panama Canal Zone who have not established domicile elsewhere, including the spouse and dependent students.

   (g) Florida residents who had their residency in Florida interrupted by service in the U.S. armed forces, the Peace Corps or other similar volunteer organizations fostered by the United States government shall be deemed to have had residency in Florida during times of service in the aforementioned organizations.

(8) Reciprocal Agreements. The Board of Regents may enter into agreements with appropriate agencies and institutions of higher education in other states and foreign countries providing for the reciprocal exchange of students enrolled and prospective in higher educational institutions to facilitate utilization of public higher educational institutions in this State and other states or countries. Such agreements may include provisions for waiver or reduction of non-resident tuition for designated categories of students and may include contractual payments to such other state or country, subject to the availability of appropriations. Such agreements shall have as their purpose the mutual improvement of educational advantages for residents of this State and such other states or countries with whom agreements may be made. Specific Authority 240.042 (2) (9), 240.052 (1) FS. Law Implemented 240.042(1), (2)(a), (h), 240.052(1)(2)(a),(b),(3), and 120.53(1)(a) FS. History—Formerly 60-2.51, 11-18-70. Amended 8-20-71, 6-5-73, 3-4-74.

TRANSFER OF "D" GRADES

Credits earned in courses transferred with "D" grades will count toward the credits required for the baccalaureate; however, it is at the discretion of the department or college of the University offering the major as to whether courses with "D" grades in the major may satisfy requirements in the major field.

SUBSTITUTION OF COURSES

If a student has completed a course similar to one required at FTU, he may file a petition to have an exception made in meeting the FTU requirement. A petition to substitute any course or courses in the Environmental Studies Program should be directed to the Standards Committee of the college in which the student is registered.
To make a substitution for requirements in a major, the student should direct his/her petition to the department in which he/she is registered.

**TIME-SHORTENED DEGREE OPPORTUNITIES**

Florida Technological University provides a number of options by which students may shorten the time required to complete the baccalaureate degree. These options permit the university to recognize high levels of academic achievement and acquisition of knowledge prior to or during attendance at the university. Procedures which may be used include the Early Admission Program, the College Level Examination Program (CLEP), the Advanced Placement Program (A.P.P.) and the University Course Credit by Examination.

1. **Early Admission Program**

   Students who have demonstrated exceptional academic ability may be permitted to enroll as students at Florida Technological University any time after completion of the junior year in high school. To be considered for full-time Fall Quarter Early Admission, applicants must have:
   
   a. Test scores near the top 15th percentile statewide or nationally (SAT—1100 or above, ACT—24 or above).
   
   
   c. A recommendation from the student’s high school counselor.
   
   d. A letter of permission from parents or guardian.
   
   e. A campus interview to ascertain the student’s maturity and ability to adjust to collegiate responsibilities.

   Qualified students may dual-enroll on a part-time basis, taking one or two courses while completing their high school programs. An interview and letters of recommendation from parents and principal are required.

   Students desiring admission prior to high school graduation should contact the Admissions Office for an appointment.

2. **College Level Examination Program (CLEP)**

   Florida Technological University grants university credit for examinations taken under the CLEP program provided the score obtained is at the 50th percentile or above on the National Sophomore CLEP norms.

   Florida Technological University will award up to $6^{1/2}$ quarter hours of university credit under the CLEP program. (See page 39).

3. **Advanced Placement Program (A.P.P.)**

   Students who have participated in the Advanced Placement Program in high school and received a score of three (3), four (4) or five (5) on the national examinations will receive from 4 to 8 quarter hours of college credit in each of the appropriate subject areas. Consult your high school guidance counselor or write to the Educational Testing Service, Princeton, New Jersey 08540, for additional information.

4. **University Course Credit by Examination**

   Regularly enrolled undergraduate students at Florida Technological University may obtain credit for specific university courses through Departmental Examinations. Those who feel they have acquired the knowledge and/or skills a specific university course should contact their advisor and the chairman of the department in which the course is offered to arrange for an examination. Degree credit will be awarded for those courses successfully completed by departmental examination.
Credit by examination cannot be used to raise a grade in a course previously completed or to reduce the last 45 q.h. of the residency requirement. Credit by examination shall not be given for any course lower in content than courses in the same discipline (i.e., with the same rubric) in which a student is currently enrolled or which he/she has already completed. Permission to take an examination is approved by the chairman of the department and the dean of the college in which the course is offered. Standard forms requesting university credit by examination may be obtained from the Registrar’s Office by presentation of an I.D. card. (See page 37.)

*Excludes transient and non-degree students.

FLORIDA TECHNOLOGICAL UNIVERSITY

CLEP POLICY

CLEP credit may be earned by the following methods—CLEP general examinations, CLEP general examination subtests and CLEP subject examinations. A student may earn a maximum of 67½ quarter hours (45 semester hours) of credit through this program. Successful completion of CLEP examinations means performance at or above the 50th percentile.

Awarding CLEP credit is subject to the conditions listed below.

1. Credit may be awarded in the CLEP general examination area, CLEP general subtest area, or CLEP subject examination area provided the student: (a) has not previously received comparable college course credit in the CLEP examination area, (b) does not receive comparable college course credit in the CLEP examination area in the same quarter the examination is taken or in a subsequent quarter, (c) has not previously completed a more advanced course in the examination area, and (d) does not complete a more advanced course during the quarter in which the CLEP examination is taken.

2. Partial credit may be awarded in three of the CLEP general examination subtest areas (Humanities, Natural Sciences, Social Sciences). Partial credit may be awarded to students who have course duplication in one subtest area but not in the other subtest area (e.g., a student has completed HUM 201 but has not completed ENG 201 or another more advanced literature course). In such a situation the student would be eligible to receive credit in the literature subtest area provided that he receives a satisfactory total score and a satisfactory subtest score. The restrictions listed in Item 1 also apply to partial credit.

The following table provides information related to the CLEP general examination areas and subtest areas for which credit may be awarded. In addition, this table delineates the number of credit hours per examination, the minimum passing scaled score, the courses and other CLEP examinations which duplicate the CLEP general examinations, and the CLEP usage. Information can be secured in the Developmental Center on CLEP subject examinations for which credit may be awarded.

It is important to note that a maximum of 67½ quarter hours in any combination of extension, correspondence, CLEP, Time-Shortened Degree, and Armed Forces Service School Credits will be accepted by the University for application toward an undergraduate degree. In addition, CLEP credit cannot be used to reduce a grade point deficiency. For example, a CLEP grade cannot be substituted for a grade awarded for a previously completed course.
### CLEP General Examinations, Maximum Credit Hours, Minimum Passing Scaled Scores, Courses and Examination Which Duplicate the CLEP General Examinations and Recommended CLEP Usage

<table>
<thead>
<tr>
<th>Subtest Areas</th>
<th>CLEP Usage</th>
<th>Courses and Examinations which duplicate the general examination test area</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Comp.</td>
<td>4 QH</td>
<td>REA 1996: Vocabulary Study, ENC 1103: Composition I, LIT 2110: Lit of Modern Man</td>
</tr>
<tr>
<td>Humanities</td>
<td>4 QH</td>
<td>MGF 1124: Prin of Math, MAT 1024: Fund Algebra, MUL 3011: Enjoyment of Music</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4 QH</td>
<td>Intro to Art*, HUM 2200: W. Hum Survey, MUL 3011: Enjoyment of Music</td>
</tr>
</tbody>
</table>
DEGREE REQUIREMENTS

Each student is responsible for reading and understanding the degree requirements as stated in the catalog under which he plans to graduate.

UNDERGRADUATE

The requirements for a major, including the University graduation requirements, must be met by each student who receives a degree from Florida Technological University. The minimum bachelor degree requirements for all students are as follows:

- A minimum of 180 academic quarter hours credit with at least a "C" average (2.0 GPA) for all course work attempted (both FTU and overall).
- A minimum of 90 quarter hours of work taken for the bachelor's degree must be earned in a senior institution.
- A minimum of 72 quarter hours of work taken for the bachelor's degree must be taken in 3000-level courses or above.
- A minimum of (and the last) 45 quarter hours must be earned in residence at FTU. Credit by examination may not be used to satisfy this requirement.
- A maximum of 67½ quarter hours in any combination of extension, correspondence, CLEP, Time Shortened Degree and Armed Forces credits accepted by the University may be applied toward an undergraduate degree. The acceptance of credit for degree purposes is subject to review by the college standards committee and may differ from college to college. Additional quarter hour credit may be granted by examination given at FTU.

A student entering FTU after September 1, 1976 with fewer than 90 accepted quarter hours of credit upon admission must earn 15 quarter hours prior to graduation by attending one or more summer quarters at a university in the State University System.

A student has the option of fulfilling the course requirements for graduation under any single FTU Bulletin in force during his most recent period of continuous attendance. The use of a combination of Bulletins to fulfill degree requirements is not permitted. Should his attendance be interrupted, for more than two consecutive quarters, his continuous attendance would begin with his most recent admission. The university reserves the right to discontinue course offerings at any time. Students meeting graduation requirements outlined in an earlier catalog will be required, with prior approval by the dean, to substitute alternate courses for those no longer offered. Except for the foregoing, the Administrative and Academic Policies of the current Bulletin will be considered official for graduation. A Florida community college graduate may elect to use the FTU Bulletin in force at the beginning of his most recent continuous attendance at the community college provided his attendance continues uninterrupted including his transfer to FTU.

GRADUATE

The following University-wide graduate degree requirements must be met by each student who receives a master's degree from Florida Technological University. The minimum master's degree requirements are: at least 45 quarter credit hours of graduate work, with a minimum average of "B" for all courses attempted and at least one half of the minimum required course work must be numbered 6000 or higher.

Additional graduate program degree requirements are specified in this Bulletin in the section on Graduate Studies in the graduate program section of each of the individual colleges.
DEGREES OFFERED
ASSOCIATE OF ARTS DEGREE

Florida Technological University students who satisfactorily complete 90 quarter hours of acceptable college work with an FTU and overall grade point average of 2.0, may apply to the Registrar's Office for an Associate of Arts Degree. The required 90 quarter hours must include all of the basic requirements of the Environmental Studies Program and the last 30 credits must have been earned in residence at FTU.

The Associate of Arts Degree is awarded on application only, and an application should be made in the quarter in which the requirements for the degree will be satisfied or any time thereafter prior to the completion of the baccalaureate degree. Once the student has made application for the A.A. degree, the Registrar will notify the Office of Academic Affairs for verification of requirements. When the Registrar is notified of verification, the Associate of Arts Degree certificate will be forwarded to the recipient.

UNDERGRADUATE

The University offers the degrees of Bachelor of Arts, Bachelor of Engineering Technology, Bachelor of Fine Arts, Bachelor of Science, Bachelor of Science in Business Administration, Bachelor of Science in Engineering, and Bachelor of Science in Social Sciences. These degrees are available in the following Colleges, with major or areas of specialization as indicated:

College of Business Administration

Bachelor of Science in Business Administration (B.S.B.A.)
    Majors: Accountancy, Economics, Finance, General Business Administration, Marketing

College of Education

Bachelor of Arts (B.A.)
    Major: Elementary Education
    Major: K-12 with specializations in Library Media Specialist, Physical Education, Visual Arts Education

College of Engineering

Bachelor of Science in Engineering (B.S.E.)
    Bachelor Engineering Technology (B.E.T.)
    Major: Engineering Technology

College of Humanities and Fine Arts

Bachelor of Arts (B.A.)
    Majors: Art, English, Film, Foreign Languages (General), French, Spanish, History, Humanities and Fine Arts, Music, Music Education, Philosophy, Theatre
    Bachelor of Fine Arts (B.F.A.)
    Major: Art
College of Natural Sciences

Bachelor of Science (B.S.)
Major: Biology, Botany, Chemistry, Computer Science, Forensic Science, Limnology, Mathematics, Medical Records Administration, Medical Technology, Microbiology, Physics, Radiologic Sciences, Respiratory Therapy, Statistics, Zoology

College of Social Sciences

Bachelor of Arts (B.A.)
Major: Allied Legal Services, Anthropology, Communication, Communicative Disorders, Criminal Justice, Economics, Film (RTV), Journalism, Political Science, Psychology, Public Administration, Radio-Television, Social Work, Sociology, Speech

Bachelor of Science (B.S.)
Major: Social Sciences

Office of Academic Affairs

Bachelor of Arts (B.A.)
Major: General Studies
Bachelor of Science (B.S.)
Major: General Studies

GRADUATE

The University offers graduate degrees in the following colleges:

College of Business Administration

Master of Arts (M.A.)
Applied Economics
Master of Business Administration (M.B.A.)
Master of Science (M.S.)
Accountancy

College of Education

Master of Arts (M.A.)
Master of Education (M.Ed.)
Administration and Supervision
Elementary Education including specializations in Exceptional Child, Reading Specialist
Guidance
K-12 with specializations in Library Media Specialist, Music Education, Physical Education, Reading Specialist, Visual Arts Education
Secondary Education with specializations in Business Education, English Language Arts, Foreign Languages, Mathematics, Science, Social Sciences, Speech, Vocational Education

College of Engineering

Master of Science (M.S.)
Master of Science in Engineering (M.S.E.)
Master of Science in Environmental Systems Management (M.S.E.S.M.)
COLLEGE OF HUMANITIES AND FINE ARTS
Master of Arts (M.A.)
   English

COLLEGE OF NATURAL SCIENCES
Master of Science (M.S.)
   Biological Science
   Computer Science
   Industrial Chemistry
   Mathematical Science

College of Social Sciences
Master of Arts (M.A.)
   Communication
Master of Science (M.S.)
   Clinical Psychology
   Community Psychology
   Industrial Psychology
   Master of Public Policy (M.P.P.)

1. The College of Education through a cooperative program offers work leading to a Doctor of Education Degree from Florida Atlantic University. Information about applications, admission and regulations are available from the College of Education.

2. The College of Engineering through a cooperative program offers work leading to a Doctor of Philosophy: Electrical Engineering from the University of Florida.

REQUIREMENTS FOR TEACHER CERTIFICATION
Before a person can teach in the elementary and/or secondary schools in Florida he or she must be certified by the Florida Department of Education. The certification requirements in Florida include 3 basic components:

I. GENERAL PREPARATION
Courses included in this category are normally classified as general education (i.e., Environmental Studies Program) courses. A graduate with a Bachelor's degree from an accredited institution shall be considered to have met the General Preparation requirements.

II. TEACHING SPECIALIZATION
Courses included in this category are normally classified as the major area in a student's college program. However, not all college majors are included in the certification laws. Section 7 through 36 of the Florida Requirements for Teacher Certification, January 30, 1968, describe the major areas eligible for teacher Certification and each section has an outline for any special subject requirements in the TEACHING Specialization.

III. PROFESSIONAL PREPARATION
These are two means by which students can complete a program in Professional Preparation. They are:
1. The College of Education Career Teacher Program (i.e., a major in the College of Education).
2. The Alternate Basic Certification Program (i.e., a major in some other college).
Students at Florida Technological University may achieve teacher certification by either of the following methods:

1. Completing the College of Education Program whereby students will automatically be eligible for a Florida Teacher's Certificate.

2. Completing a degree program in another college within the University and, at the same time, satisfying all requirements needed for certification.

QUARTER HOURS EXPLAINED

The graduation credit value of each course of instruction is stated in terms of quarter hours. A quarter hour of credit represents one class hour of work (or two or three laboratory hours of work) per week for a quarter.

GRADING SYSTEM

The University will utilize an alphabetic grading system. This system, with a grade point equivalent per quarter hour, is as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Passing</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
<td>0</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>Incompleted</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>Audit (no credit)</td>
<td>0</td>
</tr>
<tr>
<td>S</td>
<td>Satisfactory (with credit)/Satisfactory Progress (Research, Thesis, or Dissertation)</td>
<td>0</td>
</tr>
<tr>
<td>U</td>
<td>Unsatisfactory (no credit)</td>
<td>0</td>
</tr>
<tr>
<td>R</td>
<td>Subsequently repeated (no credit)</td>
<td>0</td>
</tr>
</tbody>
</table>

The grade point average (GPA) is the average number of grade points per quarter hour attempted and is computed by dividing the total number of grade points assigned by the total number of quarter hours attempted, less hours resulting from W, X, and I grades. The grade point average for graduation requirements is 2.0 (C) and will be computed on the student's total academic program.

INCOMPLETE GRADE

A grade "I" (incomplete) is assigned by the instructor when a student is unable to complete a course due to extenuating circumstances, and when all requirements can clearly be completed in a short time following the close of regular classes. The Registrar's Office must be notified of the appropriate grade to be assigned no later than the end of the eighth week (see Academic Calendar) of the quarter immediately following that in which the "I" was assigned. Failure to complete course requirements by the end of the eighth week of the quarter may, at the discretion of the course instructor, result in the assignment of an "F" grade. It is the student's responsibility to arrange with the instructor for the removal of the "I" grade. The grade of "I" becomes a part of the student's permanent record if not removed by the end of the eighth week of the next successive quarter. A student may register for a course in which an "I" was received, but no repeat "R" action will be made on his permanent record.

HONORS

It will be the policy of the University to confer baccalaureate honors recognition at
graduation upon those students who attain a grade point average which is in the upper 15% of the range established by all students graduating in the same college during the previous two years. In no case will honors recognition be awarded to a student with a grade point average less than 3.0.

Honors awarded will be:

**Summa Cum Laude** for those students in the upper 5%.

**Magna Cum Laude** for those students in the upper 10%, but not in the upper 5%.

**Cum Laude** for those students in the upper 15%, but not in the upper 10%.

For the purposes of establishing honors criteria grade point average reference points will be established annually for each college at the end of the summer quarter. Grade point average reference points will be determined by ranking graduates of the previous two years in each college and establishing the minimum grade point averages of students ranked in the upper 5%, 10%, and 15%, respectively, in that college. These reference points will be used during the subsequent Fall, Winter, Spring, and Summer quarters to determine who will receive honors recognition at graduation.

To receive honors recognition, students must have completed a minimum of 72 quarter hours at FTU. All FTU and transfer credit (if any), including those received in the quarter of graduation, will be used to determine official honors for entry on the student's permanent academic record. The quarter of graduation will be excluded in determining honors for listing in the commencement bulletin, as it is printed before final grades are reported, and therefore a student qualifying for honors recognition at commencement may or may not qualify for honors on his academic record.

**DEAN'S LIST**

The Dean's List is recognition of scholastic honors for undergraduate students who register for and complete at least 12 Quarter Hours with a 3.4 GPA and no grade less than "C" during a quarter.

**REPEAT POLICY**

**FTU Courses.** A student may register to repeat an FTU course at any time prior to completion of the baccalaureate degree. Both grades will be recorded on the student's official transcript and averaged in his grade point average. Hours for completion may be used only once toward degree requirements.

**Transfer Courses.** If a transfer student takes an equivalent course at FTU which was previously completed at another institution or completes the same course twice at another institution, both grades will be utilized in calculating the student's grade point average. However, in keeping with the Articulation Agreement's Forgiveness Policy (Utilizing only the last grade in the GPA), a Florida state supported community college's forgiveness will be honored for students who receive an A.A. Degree.

**SCHEDULE CHANGES—**

**Add-Drop Policy**

**Add:** Students may add a course during the official Add-Drop Period (the first three to five days of each quarter—see calendar). After the add-drop period, no course may be added.

**Drop:** Students may drop a course during the official Add-Drop Period (the first three to five days of each quarter—see calendar). The fact that the student was enrolled in a class so dropped will not appear on the permanent record. Approval of the student's
faculty advisor is necessary before any course change. For withdrawal after the add-drop period, consult the withdrawal Policy.

ACADEMIC STANDING

It is of major concern to the University that each student should make reasonable progress toward his educational goal. A guidance and counseling service is provided to aid all students at all times, but special attention is given when a student is not progressing satisfactorily. Every effort will be made to aid him in the resumption of satisfactory progress.

Acceptable academic standing at the University is reserved for those students who achieve and retain a GPA of 2.0 (C) or higher. A student remains in good standing academically as long as he achieves normal academic progress required for graduation.

STUDENT CLASSIFICATIONS

Students will be classified by level, on the basis of quarter hours satisfactorily earned:

FRESHMAN: Through 44 hours.
SOPHOMORE: 45-89 quarter hours.
JUNIOR: 90-134 quarter hours.
SENIOR: 135 or more quarter hours, prior to completion of baccalaureate requirements.
POST BACCALAUREATE: Any student enrolled in courses, regardless of course level, who has a baccalaureate degree but has not been admitted to a graduate program.
GRADUATE: Any student enrolled in graduate courses who has been admitted to a graduate program.

Other student classifications are as follows:

AUDITOR: A student registered for any credit course who is not seeking credit.
CO-OP STUDENT: A student enrolled in the Cooperative Education Program is a full-time student during the work training quarter. There is no break in the Co-Op school calendar. The Co-Op student starts his work training quarter the day after the final day of school and continues through the day before the first day of school for the following quarter. See Veteran's Benefits for Co-Op's.
SPECIAL STUDENT: A student of demonstrated academic ability who does not meet the regular requirements for admission (Early Admission, non-degree, transient and auditor).
TEMPORARY: A student who applied on time and is permitted to register and attend class pending completion of his admissions file.
TRANSIENT: (1) A student temporarily registered (for one quarter) at Florida Technological University with the approval of some other university or college where he is regularly enrolled, or (2) an FTU student temporarily in attendance at another university or college, with the approval of FTU.
NONDEGREE: A student earning credit, but not working on a degree program.
PROVISIONAL: A student entering from a regionally unaccredited high school, college or university may be admitted on provisional status where appropriate. By obtaining a 2.0 GPA (C average) or better at the end of the first quarter of attendance, the provisional status will be removed. Earning less than a "C" average the first term would result in academic probation status.

VETERAN'S BENEFITS

Veteran-students eligible to receive VA educational benefits must make initial contact with the Office of Veteran’s Affairs, Student Affairs Suite, Administration Building, Phone 275-2707.

Undergraduates must carry at least twelve (12) quarter hours for full VA benefits, nine (9) quarter hours for three-fourths VA benefits and six (6) quarter hours for one-half VA benefits. Five (5) quarter hours or less will be reimbursed to the veteran at cost of instruction only. Those students with an undergraduate degree who are classified as post baccalaureate must meet the same criteria as undergraduates. Veteran-students fully accepted in a graduate degree-seeking program are required to carry nine (9) quarter hours for full benefits, seven (7) quarter hours for three-fourths, and five (5) quarter hours for one-half.

Veterans in a Co-Op status can choose to draw VA Benefits for this period of eligibility as follows:

1) During on-campus enrollment the use of eligibility time is the same although the allowance is paid based on one-fourth, one-half, three-fourths, or full-time status. No allowance, or the use of eligibility time, occurs during the off-campus Co-Op work training quarter.

2) A Co-Op Veteran may elect to accept eighty percent (80%) of his VA Benefit Allowance for each calendar month of a yearly basis. Although this option does not extend a veteran’s eligibility time, it does pay all benefits except twenty percent (20%) providing he is enrolled for the minimum number of credit hours to qualify for full-time benefits during his on-campus quarter.

ACADEMIC TERMS AND ACTIONS DEFINED

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarter Average</td>
<td>Grade Point Average on work attempted during any given quarter.</td>
</tr>
<tr>
<td>FTU Average</td>
<td>Grade Point Average on all work attempted while in attendance at Florida Technological University.</td>
</tr>
<tr>
<td>Overall Average</td>
<td>Grade Point Average on all work attempted since entering college, including work from all previously attended institutions.</td>
</tr>
<tr>
<td>Academic Warning</td>
<td>First action taken when a student's FTU overall GPA drops below 2.0. An FTU student is placed on Academic Warning only once. Subsequent action will be Academic Probation. A student may be admitted on Academic Warning.</td>
</tr>
<tr>
<td>Academic Probation</td>
<td>Action taken if a student on Academic Warning does not achieve a 2.0 GPA or better in the subsequent quarter. This action is also taken when a student who has previously been on Academic Warning lets his overall or FTU GPA drop below 2.0. Academic Probation will continue until such time as the current quarter, overall, and FTU cumulative GPA's reach 2.0 or better. A student may be admitted on Academic Probation.</td>
</tr>
</tbody>
</table>
A student on Academic Probation is Disqualified when he fails to achieve a 2.0 GPA during the subsequent quarter. A student who is Disqualified may not enroll at the University for two quarters following disqualification. Readmission after the mandatory two quarters out is not automatic. A disqualified student must apply for readmission. His total record will then be reviewed and action on his readmission taken by the University Admissions and Standards Committee.

If a student is readmitted after an appeal to the Admissions and Standards Committee following disqualification and still fails to achieve a 2.0 GPA, he is excluded from the University. Exclusion is most serious and readmission will not be considered prior to a minimum suspension period of one academic year.

Every student has the right to Appeal any of the preceding four academic actions either in person or in writing. The Appeal should be made to the Admissions and Standards Committee. Contact the Director of Admissions for procedure.

If a student has dropped out of the University for any reason, he must reapply on the appropriate form (see calendar for deadline).

First time FTU students may be admitted on either Academic Warning or Academic Probation at the discretion of the Admissions Officer or the Admissions and Standards Committee. Academic Warning and Probation are intended to inform the student making unsatisfactory progress of his need to alter study habits and to seek additional counseling. Early recognition will indicate to the student and to his parents the possible jeopardy to his academic goals, and will also allow an opportunity to demonstrate acceptable performance.

EARNING CREDIT WHILE DISQUALIFIED OR EXCLUDED

A student disqualified or excluded while a Freshman or Sophomore and who subsequently receives an A.A. degree with a “C” average (2.0 GPA) on all college work attempted from a Florida community college may be readmitted to the university with credit earned accepted in accordance with standard University policies.

A student who attends other colleges or universities following disqualification will be classified as a transfer student and his readmission will be based on his total educational record.

WITHDRAWAL POLICY—From a Course (After Add-Drop Period) or from the University.

Students may withdraw from classes without grade penalty until the end of the fifth week of any regular academic term or until the midpoint of any term of less than 10 weeks duration. No withdrawal is permitted after the above specified times. Upon request, the course instructor shall provide the student with an assessment of the student’s performance in the course prior to the last day for withdrawal.

Forms for Withdrawal in Good Standing may be obtained at the Registrar’s Office and must be returned to the Registrar. A “W” will appear on the permanent record of a student who formally withdraws from a course. Withdrawal policies and procedures apply to part-time as well as to full-time students and are effective whether the student
withdraws from one course or from the University. A student leaving the University during or at the end of the quarter with financial obligations to the University unfulfilled (for example, library fines, breakage fees, and so forth) will have the statement "Not in Good Standing" entered on the permanent record.

GENERAL EDUCATION REQUIREMENTS CERTIFICATION

An undergraduate student who has not completed requirements for the Associate of Arts degree and who wishes to transfer to another Florida state university can have his transcript stamped GENERAL EDUCATION REQUIREMENTS MET if he has completed FTU's Basic Environmental Studies Program of 54 quarter hours with a GPA of 2.0 or better. (See page 56 for program outline). FTU will accept a similar statement on transcripts received from Florida community colleges or other institutions in the State University System in lieu of completion of the University's Basic Environmental Studies Program.

 STEPS IN THE GRADUATION PROCESS

UNDERGRADUATE AND GRADUATE

A student should apply to the Registrar for graduation before registering for his final quarter of attendance and not later than the last day of the Add-Drop Period for that quarter.

Upon completion of 150 undergraduate quarter hours of course work, the student is notified to report to the Registrar's Office.

The following steps are required of a student who is near or in his/her last quarter before graduation:

1. The student must complete an "Intent to Graduation" form, available in the Registrar's Office, not later than the last day of the Add/Drop period in the quarter in which graduation is anticipated.

2. The candidate for graduation must initiate a checksheet for graduation with his/her advisor. At the end of the quarter the checksheet will be completed and forwarded for approval to the Dean of the college in which the student is enrolled. If approved, the Dean will forward the checksheet through appropriate channels to the Registrar's Office for inclusion in the student's permanent university record.

Successful completion of the degree requirements stated in the bulletin under which the student has indicated he wishes to graduate (following the rules stated on page 40) shall constitute a recommendation of the respective college faculty that the degree be awarded, assuming the student is in good standing in the University.

A student must complete all requirements for a baccalaureate or graduate degree no later than the date of the quarter graduation ceremony. A student registered as a transient student at another institution during the last quarter before graduation must complete all courses by the date of FTU's graduation and must provide an official transcript of work taken no later than 5 days after the FTU graduation date.

DOUBLE MAJORS

Any FTU student working toward a single baccalaureate degree and who satisfies all requirements for two majors leading to that degree will have one diploma awarded, and both majors will be indicated on his permanent record. Majors under each degree are listed on pages 41-42. For example, a student who satisfies all requirements for a
major in Political Science and for a major in History would be awarded a single Bachelor of Arts degree with the two majors indicated on his permanent record. Similarly, if a student wishes to pursue two majors leading to different baccalaureate degrees (e.g., Psychology which leads to a Bachelor of Arts degree and Biology which leads to a Bachelor of Science degree), he must satisfy the requirements of both majors. Although both majors will be indicated on his permanent record, only one diploma will be awarded (e.g. B.A. in Psychology or B.S. in Biology, at the student’s option).

SECOND BACCALAUREATE DEGREE

Any FTU student desiring to obtain two baccalaureate degrees must meet the requirements for both degrees and earn a minimum of 225 quarter hours. A separate diploma will be awarded for each degree.

Transfer graduates from accredited four-year institutions who apply for admission to work toward a second baccalaureate degree at Florida Technological University must meet the regular graduation requirements of the major department and the 45-quarter-hour residency requirement. Students holding the baccalaureate degree from an accredited institution are considered to have completed all Environmental Studies Requirements.
GRADUATE STUDIES

Dean: L. Ellis, AD 243, Phone 275-2671
Associate Dean: F. Juge, AD 243, Phone 275-2731

GENERAL INFORMATION

The Office of Graduate Studies consists of the Associate Vice President for Academic Affairs/Dean for Graduate Studies, an associate Dean for Graduate Studies, and a Graduate Council of appointed representatives from each college and the Faculty Senate. The Office of Graduate Studies is responsible for the establishment and subsequent monitoring of minimum University-wide standards concerning graduate admission and matriculation. It also coordinates the graduate programs of the various colleges of the University. However, responsibility for the detailed operation of the various graduate degree programs is vested in the individual colleges.

A listing of graduate degree programs is shown on page 42. For particulars concerning individual graduate programs, consult the index for appropriate page referrals.

The following general information pertains primarily to masters programs. For information concerning cooperative doctoral programs, consult the respective graduate program coordinators in Education and Engineering.

ADMISSION TO GRADUATE STUDIES

APPLICATIONS

Applications for admission to graduate study may be obtained from the Registrar, or from the Dean of the College offering the program. Applications which appear to meet minimum standards for admission are referred to the Dean of the appropriate College for his recommendation. All applications should be submitted to the Admissions Office.

Applications will not be considered without complete official transcripts showing the last 90 hours of undergraduate courses taken for the baccalaureate degree and all graduate work attempted. All transcripts must be received directly from the Registrar of the institution in which the work was attempted.

ADMISSION STATUS

Normally a student is admitted on a Post-Baccalaureate status until his file is complete and the program coordinator has had an opportunity to review his credentials. Before the completion of 12 credit hours in this category, a student must be admitted either to Graduate Status (Regular or Provisional) or be informed of conditions to be met before admission. Under no circumstances should a student undertake more than 12 hours in a Post-Baccalaureate status.

POST-BACCALAUREATE STATUS

Students may be admitted in the post-baccalaureate category under any of three conditions:

A. Temporarily, because their file is incomplete.
B. They do not wish to pursue a degree program.
C. They do not meet the standards for regular admission.

Post-baccalaureate status is not a degree-earning category. Whereas a student may earn credit in any number of courses, these hours will not necessarily lead to a degree. If a student is, however, subsequently admitted to degree status, 12 FTU or SUS quarter
hours of post-baccalaureate work (see Transfer of Credit) may be considered for transfer into the degree program.

If the student is placed in the post-baccalaureate category because he does not have a sufficient grade point average or examination (GRE or GMAT) score, admission graduate status may be attained only by repeating the examination and making an acceptable score or by being selected for provisional status. Post-baccalaureate hours cannot be used to raise an insufficient undergraduate point average.

GRADUATE STATUS—REGULAR

To be eligible for consideration as a regular, degree-seeking student, the student must file official transcripts showing degrees earned (a baccalaureate degree being the minimal standard) and any credit beyond the baccalaureate degree, and he must meet the following University and program minimum admission requirements:

A. University Admission Requirements

1. Baccalaureate degree with one of the following:
   a. Either a grade point average (GPA) of 3.0 (4.0 = A) for the last 90 quarter hours credited toward the earned Baccalaureate degree from an accredited institution, or
   b. Quantitative-verbal GRE score of 1000 or higher. Applicants to the College of Business Administration must submit a GMAT score of 450 or higher in lieu of the GRE.

or

2. Graduate degree from an accredited institution.

B. Program Admission Requirements

The applicant must be accepted by the department or administrative unit offering the degree program to which the application is made. In any degree program, admission criteria above and beyond University minimums may be required. In the event enrollment in a program must be limited, additional criteria may be developed beyond those described in this catalog. Prior to submitting an application, students are expected to familiarize themselves with the program admission requirements specified in the respective degree program sections of this catalog (or in supplementary material available from the degree program).

GRADUATE STATUS—PROVISIONAL

Individual programs may elect (but are not required) to admit on a provisional basis a very limited number of students who do not meet minimum University admission requirements. Provisional admission is based upon evidence of academic and professional promise. If a course work average of "B" or higher is earned upon the completion of the first 12 quarter hours of graduate program course work, provisional students may then be considered for acceptance into the degree program as regular graduate students. To apply for provisional admission, students should file an application with the appropriate graduate degree program coordinator.

GRADUATE RECORD EXAMINATION/GRADUATE MANAGEMENT ADMISSION TEST (GMAT) REQUIREMENT

Certain graduate programs require all of their applicants to submit scores on the Graduate Record Examination (GRE) or GMAT. Applicants should refer to the appropriate graduate degree program section for their particular requirements. Satisfactory scores on these examinations are determined by the College to which the application is made.
Applicants should write to the Educational Testing Service, Princeton, New Jersey 08540 or contact the FTU Developmental Center for information on the GRE or GMAT testing dates and locations.

SECOND GRADUATE DEGREE PROGRAM

A student who has completed one graduate degree program must secure the approval of the program concerned before undertaking a second graduate program. Work taken without such approval will not count toward a graduate degree.

FLORIDA RESIDENCY (See page 34)

TRANSFER OF GRADUATE CREDIT

Upon petition a student may transfer a maximum of 12 quarter hours of applicable work into his Program of Study. Twelve quarter hours of work taken as a post-baccalaureate student at FTU may be transferred. If work was taken at another Florida State University System institution, up to 12 quarter hours of that may be accepted; however, only 9 quarter credits may be utilized from institutions not in the State University System.

INTERNATIONAL STUDENTS

Applicants from foreign countries whose native language is not English are required to submit scores on the Test of English as a Foreign Language (TOEFL) examination in addition to the GRE or GMAT. These examinations are offered periodically at test centers throughout the world by the Educational Testing Service. The TOEFL Bulletin of Information for Candidates, International Edition, and Registration Form are available at American embassies, consulates, offices of the United States Information Service or other U.S. government agencies abroad.

READMISSION

Students not registered in the previous academic quarter (exclusive of the summer term) must submit an application for readmission to the Registrar’s Office approximately one month before classes begin (see academic calendar for the exact date).

GENERAL REGULATIONS

UNIVERSITY GRADUATE PROCEDURES MANUAL

See the current FTU Graduate Procedures Manual which is available in the Office of Graduate Studies for additional graduate procedures.

STUDENT RESPONSIBILITY

The student is responsible for informing himself of all rules, regulations, and procedures required by the Office of Graduate Studies and the College offering the course or program he is pursuing. Regulations will not be waived or exceptions granted because a student pleads ignorance of the regulation or claims failure of his advisor to keep him informed.

EXCEPTIONS TO GRADUATE REGULATIONS

When exceptional situations arise, petitions for special consideration may be submitted to the Graduate Council.
THE TRAVELING SCHOLAR PROGRAM

The University participates in a Traveling Scholar Program, enabling a graduate student to take advantage of special resources available on another campus but not available on his own campus: special course offerings, research opportunities, unique laboratories, and library collections.

A traveling scholar must receive the approval of his own graduate advisor and the appropriate faculty member at the host university, then be formally approved by the graduate deans at the respective institutions.

The scholar will be registered at the host university and pay regular fees there. He will receive a waiver of admission requirements and the application fee of the host university. Credit for work, which is guaranteed, will be recorded at the home university.

Normally, traveling scholars are limited to one quarter of off-campus study. They are not entitled to mileage or per diem payments but the home university may, at its option, continue its financial support in the form of fellowships or graduate assistantships without any work obligation to be discharged at either university. Appropriate forms are available in the Office of Graduate Studies.

STUDENT'S COMMITTEE

The student's advisory committee (or advisor) should be influential in designing a program of study for the student. The committee will provide continual guidance and is the principal mechanism for evaluating the student's progress.

Advisors and advisory committees will be appointed by the dean of the College in cooperation with the Department or appropriate unit in which the student is enrolled. Advisory committees must have at least three (3) members.

STUDENT'S PROGRAM OF STUDY

A total program of study must be established for each student prior to completion of 12 hours of graduate credits or his first quarter of full time work. This program must be developed by the student in cooperation with his advisor or committee and should be approved by the appropriate College Dean. A copy of the program and names of the student's advisor or committee members will be filed with the Office of Graduate Studies prior to the start of the student's second quarter.

COURSE LOADS

Graduate students applying for assistance under Public Law 89-358 (Veterans' Readjustment Benefits Act of 1966) must register for 9 credits per quarter to qualify for certification as a full-time student. Post-baccalaureates must register for 12 credits. Normally, the maximum load for graduate students is 15 quarter hours.

COURSES AND CREDITS

Courses numbered 5000-5999 are primarily for beginning graduate students. Courses numbered 6000-6999 are exclusively for graduate students. At least one half of the course requirements of the student’s graduate program of study must be at the 6000 level. No more than 9 hours of 4000 level work may be utilized in a graduate program of study. Courses of 3000 level and below may not be utilized in a graduate program of study without prior permission from the Graduate Council.

No more than nine (9) hours of independent study credit will be accepted in the program of study.
Undergraduate registration in 6000 level graduate courses is allowed only with prior approval, utilizing the Graduate Studies GS-7 form.

**THESIS AND NON-THESIS DEGREES**

At least 36 credits of course work must be earned exclusive of thesis for thesis degree. Thesis instructions for students are available in the Office of Graduate Studies.

At least 50% of the credits offered for the non-thesis degree must be in a single field of concentration. A research report is required for this degree.

**CREDIT BY EXAMINATION—INDEPENDENT STUDY**

Credit by examination may be utilized to satisfy course requirements, but not credit hour requirements.

**THESIS-LANGUAGE EXAMINATIONS**

Thesis and language examination requirements are at the option of the respective degree programs.

**GRADES AND SCHOLARSHIP**

Acceptable grades for students pursuing graduate study are A and B. A student whose GPA falls below this value will normally be dropped from the graduate program.

A course may be repeated for a better grade; however, no forgiveness procedure will apply. An accumulation of more than eight (8) hours of C,D,F or unresolved I work is grounds for automatic dismissal from a degree program.

**RECENCY OF WORK**

Courses completed more than seven years prior to the quarter in which the degree is earned may not be used toward meeting degree requirements.

**RESIDENCE REQUIREMENTS**

At least 33 credits must be earned at FTU. Residence credits may be earned through enrollment in courses offered on campus, at FTU Residence Centers or at other locations where FTU courses are taught by FTU faculty.

**FINAL QUARTER REGISTRATION**

Students must be registered in any quarter in which FTU faculty or facilities are utilized. Unless the graduate program certifies to the Office of the Registrar that no FTU resources will be utilized, a student must be registered in the quarter of graduation.

**EXAMINATIONS**

An end-of-program (final) comprehensive examination is required of all students. This examination may consist of a thesis defense or an examination of course work material or both.

**APPLICATION FOR DEGREE**

The student must file an Intent to Graduate form in the Office of the Registrar during the first week of the quarter in which graduation is anticipated. If the student then fails to graduate that quarter, the Intent to Graduate form must be refiled in the quarter when graduation is next anticipated.
ACADEMIC PROGRAMS

Each college requires work in the Environmental studies program in addition to its respective curricula.

ENVIRONMENTAL STUDIES PROGRAM

The Environmental Studies Program presents to each student an opportunity to gain an insight into an organized body of knowledge designed to enhance the student’s ability to make intelligent decisions in a world of the future. This program provides the student with an acquaintance of many of the major areas of academic inquiry. It permits the student to make a more meaningful choice of a major and provides insights into areas from which he may select courses for elective credit.

ENVIRONMENTAL STUDIES (69 QUARTER HOURS REQUIRED)

BASIC PROGRAM (54 QUARTER HOURS REQUIRED)

COMMUNICATIONS

(Select one course from each group)

I. Composition
ENC 1103

II. Speech
SPC 1014

III. Communications Options
CRW 2020, ENC 1135, ENC 3355, LIN 2200, LIN 2701, LIT 2020 or any course with the prefix SPC

CULTURAL AND HISTORICAL FOUNDATIONS* 11-12

(Select one course from each group)

I. Western Humanities
HUM 2200

II. Humanities & Fine Arts
Any course offered by the College of Humanities and Fine Arts in Art, Literature, (English or Foreign), History, Humanities, Music, Philosophy, Religion or Theatre.

III. History
Any course in History offered by the College of Humanities and Fine Arts.

MATHEMATICAL SCIENCES 7-8

(Select from two groups)

I. Mathematics
MAC 1104, 1114, 1132, 1142, 1143, 2154, 3233, 3253, 3254, 3311, 3312, 3313; MAE 1810, 2811, 3812; MAT 1024; MGF 1124; MHF 2300

II. Statistics
STA 2014, 3023, 3032

III. Computer Science
CAP 3001; COC 1100; COP 1110, 2510, 2511, 3215

IV. Philosophy (Logic)
PHI 2130

Social Sciences* 12-13
(Select at least one course from each group)

I. ECO 2000 or ECO 2023, ECO 2013
   POS 2041 or POS 3001
   GEO 3602 or GEO 3470

II. PSY 2013, PSY 2014
    SOC 2000, SOC 2001
    ANT 3000, ANT 3410
    COM 1000

Scientific Environment

(Select from at least two groups)

I. Biological Sciences
   BSC 1010C, 1020, 1020C, 1030C; BOT 1010C;
   MCB 2013C; ZOO 1010C

II. Earth Sciences
    ECI 3603 GEO 1200C, 3370; GLY 1000, 1100

III. Physical Sciences
    AST 1005; CHM 1034, 2200, 2205L, 2045, 2046, 2047; EGN 1380, 1381; OCE 1012;
    PHY 2040, 2041, 2042, 2050C, 2051C, 3014C, 3015C, 3016C; PSC 1512

*After the completion of a year of foreign language, a student may substitute language for any 4
   hours of credit in Cultural and Historical Foundations and 4 hours of credit in Social Sciences. The
   remaining hours may be used in the General Elective area of the student’s major. For placement in
   language classes, see page 120.

ADVANCED PROGRAM (15 QUARTER HOURS REQUIRED)

In addition to courses required to satisfy the basic Environmental Studies Program, a student
must successfully complete at least one upper division course in each college other than the col-
lege in which the major is completed for a total of at least 15 quarter hours of credit. A student ma-
joring in the General Studies program must complete an upper division course in five of the col-
leges for a total of at least 15 credit hours to meet this requirement.

MAJOR IN GENERAL STUDIES

PURPOSE

The General Studies curriculum is a university-wide general purpose program lead-
ing to the Bachelor of Arts in General Studies or Bachelor of Science in General
Studies degree. The determination of whether the Arts or Science degree shall be
awarded will be determined by the course areas selected.

The program is administered through the office of the Associate Vice President for
Academic Affairs and is designed for liberal education and academic flexibility. It rec-
ognizes that, apart from the professional curricula, there are many combinations of
courses which can be structured into meaningful programs to meet the needs of in-
dividual students.

The General Studies program has two main purposes:

1. It accommodates students who desire a liberal, non-professional education en-
compassing several fields.

2. It provides a means for students to start a productive university education while
delaying decision on professional curricula until the sophomore year.

Students who are undecided as to their major may pursue the General Studies
program until they can select a specific major area.
Students fulfilling the requirements for a degree in General Studies must complete either the FTU Basic Environmental Studies Program or the General Education requirement at a Florida State Junior College. In addition, 15 quarter hours of Advanced Environmental courses are required as outlined on the previous page.

The General Studies student must complete a minimum of four course area groupings in which at least three colleges are represented. A minimum of 22 quarter hours must be completed in each area with an additional 23 quarter hours to be completed in a fifth area or used to strengthen one or more of the four course area groupings. However, students choosing only four course area groupings may include a maximum of 12 quarter hours of general electives in completing their degree program.

The areas of Business Administration, Education, and Engineering may be used twice provided a specific concentration corresponding to a traditional major is chosen for one of the area course groupings. For example, two areas in Business Administration may be completed using 22 quarter hours in Accountancy and 22 quarter hours in general business courses.

In addition to the University-wide degree requirements shown on page 40 a minimum grade point average of 2.0 must be achieved in each course grouping.

**COURSE AREA GROUPINGS**

**AIR FORCE ROTC**  
For students who take and complete the Air Force R.O.T.C. four year or two year upper division programs.

**ALLIED HEALTH SCIENCES**  
Allied Health Sciences, Medical Record Administration, Medical Technology, Nursing, Radiologic Sciences, Respiratory Therapy and other Health Related Professions.

**BEHAVIORAL SCIENCES**  
Anthropology, Psychology, Sociology, and Social Welfare.

**BIOLOGICAL SCIENCES**  
Biology, Botany, Microbiology, and Zoology.

**BUSINESS ADMINISTRATION**  
Accounting, Economics, Finance, General Business Administration, Management, Marketing, and Quantitative Business Analysis.

**COMMUNICATION**  
Journalism, Radio-Television, Speech and general courses in Communication.

**EDUCATION**  
Business Education, Library Science, Physical Education, Teaching Analysis, Vocational Education and selected courses from Elementary and Secondary Education.

**ENGINEERING**  
Selected courses from the Engineering core and departmental offerings. A maximum of 9 quarter hours from the following courses may be used in the Environmental Studies and General Studies program: EGN 3842, 4843, 4844, 4814, 4033, 4813, 4823, 4824, 4815, 4825, 4832, and 5035.

**FINE ARTS**  
Art, Music, Theatre.

**HUMANITIES**  
English, Foreign Literature, History, Humanities, Philosophy, and Religion.

**LANGUAGES**  
French, German, Italian, Russian, Spanish.
MATHEMATICAL SCIENCES N.S.**
Computer Science, Mathematics, and Statistics.

PHYSICAL SCIENCES N.S.**
Astronomy, Chemistry, Forensic Science, Geography (Physical), Geology, Physics, and general courses in the Earth and Space Sciences.

SOCIAL SCIENCES S.S.**
Allied Legal Services, Criminal Justice, Economics‡, Geography (Social), Political Science, and Public Administration.

‡This course shown in two areas.
*Consult your advisor. Many ED courses require concurrent public school practicum.
**The current six colleges are: Business Administration (B.A.); Education (ED.); Engineering (ENGR.); Humanities and Fine Arts (H.F.A.); Natural Sciences (N.S.); and Social Sciences (S.S.).
COLLEGE OF BUSINESS ADMINISTRATION

UNDERGRADUATE PROGRAMS
Accountancy (BSBA)
Economics (BSBA)
Finance (BSBA)
General Business Administration (BSBA)
Management (BSBA)
Marketing (BSBA)

GRADUATE PROGRAMS
Accountancy (MS)
Applied Economics (MA)
Business Administration (MBA)
COLLEGE OF BUSINESS
ADMINISTRATION

DEAN: C. Eubanks, CB 210, Phone 275-2181
ASSOCIATE DEAN: W. Reiff, CB 210, Phone 275-2181

The goal of the College of Business Administration is to assist in the maximum development of individual potential for accomplishment as a person and as a responsible member of society by preparing students for entry into professional positions in business and government. The various programs of study offered by the College are designed to assist the student in obtaining a sound academic preparation for the career of his choice and become a valuable member of society.

The degree Bachelor of Science in Business Administration with the following majors is offered by the College of Business Administration:

- Accountancy
- Economics
- Finance
- General Business Administration
- Management
- Marketing

ENVIRONMENTAL STUDIES PROGRAM

The Environmental Studies Program for the College of Business Administration is similar to the general requirements for all students of the University. The College specifically recommends a number of courses for inclusion as part of the Environmental Studies Program. It is strongly recommended that students consult an advisor in the College of Business Administration before embarking on a course of study.

Students in the College of Business Administration cannot receive credit for the following course: MAN 3705, MAN 3006, ECO 2000, EGN 3842, and FIN 3100.

COMMON BODY OF KNOWLEDGE

The common course work provides a foundation in major areas of business administration.

LOWER DIVISION

ACC 2304, 2324 or ACC 3003
ECO 2023
ECO 2013
MAC 1104

UPPER DIVISION

MAN 3504
BUL 3111
CAP 3001
ECO 3411
ENC 3352
FIN 3403
MAN 3010
MAN 3151
MAR 3023
STA 3023
MAN 4720

Financial Accounting
Microeconomics
Macroeconomics
College Algebra
Business Operations Management
Legal Environment of Business
Computer Fundamentals
of Business Applications I
Quantitative Methods and
Business Decision Analysis
Professional Report Writing I
Finance
Management and Organization Behavior
Human Behavior and Interpersonal Relations
Marketing
Fundamentals of Probability and Statistics
Business Policies

3, 3/5 hours
4 hours
4 hours
4 hours
3 hours
3 hours
3 hours
4 hours
3 hours
5 hours
3 hours
3 hours
5 hours
4 hours
4 hours
GRADE POINT AVERAGE REQUIREMENTS

For graduation the student must have maintained a minimum 2.0 GPA in course work taken in the College of Business Administration and a minimum 2.0 GPA in the course work required in the major.

STUDENT LOAD—MAXIMUM

A student who is enrolled in 15 quarter hours of course work is considered to be carrying a normal academic load. Students desiring to take 19 or more quarter hours of course work must obtain permission from the department chairperson of their major area.

COMMUNITY/JUNIOR COLLEGE TRANSFERS

Community/Junior College students who plan to transfer to the College of Business Administration at Florida Technological University are advised to:

1. Complete the entire university-parallel program at the Community-Junior College (the Associate of Arts Degree) including:
   A. the general education requirements prescribed by the Community/Junior College.
   B. the one-year accounting and economics sequences (sophomore year).
   C. a course in College Algebra
   D. a course in Statistics
   E. a course in Business Law

2. Professional courses should not be taken at a community/junior college in the areas of Management, Marketing, Real Estate, or Finance. These professional areas are third and fourth year courses areas in the College of Business Administration and cannot be satisfied with Community/Junior College course.

MINOR

The College of Business Administration offers a minor consisting of 29-30 quarter hours.

Business Administration.

Required courses: ACC 3003; ECO 2023, 2013; FIN 3403; MAN 3010; MAR 3023; one 3000/4000 level business course elective.

DEPARTMENT OF ACCOUNTANCY

Chairman: C. Avery, CB 436, Phone 275-2463
Faculty: Busch, Chang, S. Cossaboom, Grierson, Johnson, Lanier, Marquardt, Phillips, Poor, Powell, Rivera, Salter, Shepard

Accountancy is normally selected as a major by the student who is preparing for industrial, governmental, or public accounting. The size and nature of the employing organization determines the scope of the industrial accountant's activities but, broadly defined, the following duties are illustrative: design and installation of accounting systems, preparation of financial statements and reports, cost accounting, internal auditing, interpretation and analysis of budgets, and preparation of tax returns.

In today's complex society, the Certified Public Accountant performs a specialized professional service to investors, bankers, businesses and governmental units of all sizes. The CPA's best known function is to audit—or, to conduct an objective examina-
tion and analysis of a company's financial statements for the purpose of expressing his independent opinion as to whether or not the statements fairly present the organization's financial position and results of operations.

**BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION:**

**ACCOUNTANCY**

Degree Requirements

1. University graduation requirements
   (See page 40)

2. Environmental Studies Program
   (See page 56)

3. Required Courses
   a. Business Common Body of Knowledge
   b. ACC 3101 Introduction to Accounting Theory and Practice 3 hours
   ACC 3121 Intermediate Accounting I 5 hours
   ACC 3141 Intermediate Accounting II 5 hours
   ACC 3401 Cost Accounting 4 hours
   ACC 4201 Advanced Accounting 5 hours
   ACC 4421 Cost Analysis 4 hours
   ACC 4601 Auditing 5 hours
   ACC 4501 Federal Income Tax Accounting 5 hours
   ACC 4934 Current Selected Topics 2 hours
   ECP 4703 Managerial Economics 3 hours

4. Restricted Electives
   Special qualifications for satisfying this program’s requirements:
   a. A minimum grade of "C" must be earned in each accounting course completed
   b. A transfer student to this program must take a minimum of eighteen (18) quarter hours or four (4) courses in accountancy at Florida Technological University.

5. Electives
   Total Quarter Hours Required 180

**DEPARTMENT OF ECONOMICS AND FINANCE**

Chairman: F. Raffa, CB 444, Phone, 275-2465

Faculty: Economics: Haulman, Hicks, D. Hosni, Joseph, Klages, Shockley, White, Winchester, Xander

Finance: Budina (contact person), Cheney, R. Cossaboom, Hitt, Millican, Reiff

Economics. The discipline of economics is defined in several ways. It is most frequently described as the study of how man uses limited resources to satisfy his wants. Within this framework, the economist is concerned with (1) the functioning of the economy as a whole and (2) the functioning of individual units within the economy, particularly the business firm and the consumer.

Courses in economics are designed to provide a sound grasp of tools of analysis and measurement, as well as the ability to apply systematic analysis to problems of business.
BACHELOR OF SCIENCE IN
BUSINESS ADMINISTRATION: ECONOMICS

Degree Requirements

1. University graduation requirements
   (See page 40)

2. Environmental Studies Program
   (See page 56)

3. Required Courses
   a. Business College common body of knowledge
   b. ACC 3301 Managerial Accounting 3 hours
      ECO 3101 Intermediate Price Theory 4 hours
      ECO 3203 Intermediate Money, Income and Employment Theory 4 hours
      ECO 4503 Public Finance in the American Economy 3 hours
      FIN 3233 Money and Banking 4 hours

4. Restricted Electives
   All economics majors will be required to take five economics courses beyond the above major required economic courses.

5. Electives
   Total Quarter Hours Required 180

Finance. The program in finance is designed to provide the student with a broad knowledge in the areas of business and corporation finance and investments. The program provides the student with the theoretical background and the tools of analysis required for making effective judgments in finance.

The study of finance prepares the student for careers in business financial management and with financial institutions. Commercial banks, savings and loan associations, insurance companies, and investment firms represent some of the financial institutions seeking the student who majors in finance.

BACHELOR OF SCIENCE IN BUSINESS
ADMINISTRATION: FINANCE

Degree Requirements

1. University graduation requirements
   (See page 40)

2. Environmental Studies Program
   (See page 56)

3. Required Courses
   a. Business College common body of knowledge
      ACC 3301 Managerial Accounting 3 hours
      FIN 3502 Investments 4 hours
      FIN 3303 Financial Institutions 4 hours
      FIN 3453 Financial Models 4 hours
      ECP 4703 Managerial Economics 3 hours

4. Restricted Electives
   (Select 4 courses)
   RMI 3015 Risk and Insurance 4 hours
   FIN 3233 Money and Banking 4 hours
   REE 3040 Real Estate 4 hours
5. Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN 3324</td>
<td>Commercial Bank Administration</td>
<td>4</td>
</tr>
<tr>
<td>FIN 4514</td>
<td>Security Analysis</td>
<td>4</td>
</tr>
<tr>
<td>FIN 4414</td>
<td>Financial Management</td>
<td>4</td>
</tr>
<tr>
<td>FIN 4524</td>
<td>Portfolio Management</td>
<td>4</td>
</tr>
</tbody>
</table>

**GENERAL BUSINESS ADMINISTRATION**

This program offers only an extension of the general coursework offered in the Common Body of Knowledge and provides no specific identification in Business Administration for a field of study. Students are encouraged, therefore, to review carefully the other programs of study following this section and then consult appropriate department chairmen in the College of Business Administration prior to selecting this program to make certain it appropriately contributes to career objectives.

**BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION:**

**GENERAL BUSINESS ADMINISTRATION**

**Degree Requirements**

1. University graduation requirements
   (See page 40)

2. Environmental Studies Program
   (See page 56)

3. Required Courses
   a. Business College common body of knowledge
   b. ACC 3301 Managerial Accounting 3 hours
      ECP 4703 Managerial Economics 3 hours
      ECO 4503 Public Finance in the American Economy 4 hours
      FIN 3502 Investments
      or
      FIN 3233 Money and Banking 4 hours
      or
      FIN 3303 Financial Institutions
      MAN 3301 Personnel Management 4 hours
      MAN 4004 Planning and Control 4 hours
      MAR 3613 Marketing Research 5 hours

4. Restricted Electives

   At least two additional courses from a minimum of two areas in the College of Business Administration.

5. Electives

<table>
<thead>
<tr>
<th>Total Quarter Hours Required</th>
<th>180</th>
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</table>

65
The study of management includes an investigation into the areas of organization theory, personnel management, and production management. An understanding of organizations and the process by which they develop and influence behavior is important to the study of general management.

A student majoring in management may find a wide variety of career opportunities in business, industry, or government.

BACHELOR OF SCIENCE IN BUSINESS
ADMINISTRATION: MANAGEMENT

Degree Requirements

1. University graduation requirements
   (See page 40)

2. Environmental Studies Program
   (See page 56)

3. Required Courses
   a. Business College common body of knowledge
      ACC 3301 Managerial Accounting 3 hours
      MAN 3301 Personnel Management 4 hours
      ECP 4703 Managerial Economics 3 hours
      MAN 4201 Organization Theory 4 hours
      MAN 4722 Decision Systems Analysis 4 hours
      MAN 4510 Production Management Problems 4 hours
      MAN 4401 Industrial Relations 4 hours
      MAN 4004 Planning and Control 4 hours
      COM 3110 Business and Professional Communication 4 hours

4. Restricted Electives
   ECP 3203 Economics of Labor 3 hours
   FIN 4414 Financial Management 4 hours
   MAN 4150 Human Relations 4 hours
   MAR 3403 Sales Management 4 hours

5. Electives
   Total Quarter Hours Required 180

DEPARTMENT OF MARKETING

Chairman: G. Paul, CB 420, Phone 275-2108
Faculty: Chambers, Fuller, Manske, McAleer, Rubin, Stone, Teeple

Marketing encompasses the total system of interacting business activities designed to plan, price, promote, and distribute want-satisfying products and services to present and potential customers.

The marketing curriculum concentrates on developing the student’s ability to understand, interpret, and measure market demand and to understand the blending of product differentiation, pricing strategies, promotional strategies, and physical distribution so as to optimize the efficiency of the total system and the profits of the individual firm. Students majoring in marketing find a variety of career opportunities.
BACHELOR OF SCIENCE IN BUSINESS
ADMINISTRATION: MARKETING

Degree Requirements

1. University graduation requirements
   (See page 40)

2. Environmental Studies Program
   (See page 56)

3. Required Courses
   a. Business College common body of knowledge
      ACC 3301 Managerial Accounting 3 hours
      MAR 3503 Consumer Market Behavior 4 hours
      MAR 3403 Sales Management 4 hours
      MAR 3613 Marketing Research 5 hours
      ECP 4703 Managerial Economics 3 hours
      MAR 4713 Marketing Policies and Strategies 4 hours

   b. Restricted Electives
      Minimum of 3 courses with a maximum of one in PSY, COM area
      MAR 4263 International Business Operations 3 hours
      MAR 3603 Marketing Models and Logistics 4 hours
      MAR 3303 Advertising Management 4 hours
      MAR 4203 Channels of Distribution Management 4 hours
      MAR 4703 Current Marketing Problems 4 hours
      INP 3102, SOP 3004, or COM 3110 4 hours

4. Electives
   Total Quarter Hours Required 180
COLLEGE OF BUSINESS
ADMINISTRATION GRADUATE
PROGRAMS

The College of Business Administration offers curricula leading to the Master of Business Administration degree, the Master of Science degree with a specialization in accountancy and the Master of Arts degree in Applied Economics.

ADMISSION REQUIREMENTS

1. University Admission Requirements
   (See pages 40 and 51)
2. College Admission Requirements
   a. Admission is normally open to the student with a baccalaureate degree from an accredited college or university, with a minimum of 3.0 grade point average (based on a 4.0 system) while registered as an upper division undergraduate student and an acceptable score on the Graduate Management Admission Test. An acceptable score on the Graduate Record Examination is required for admission to the Master of Arts degree program in Applied Economics. Consideration will also be given in admission decisions to the applicant's intellectual development during the course of his previous academic career, his extracurricular activities, employment experience, and other evidences of motivation for graduate study. No previous training in business is required, thus the graduate degree programs are open to graduates in education, engineering, arts, science, and other fields as well as business. The applicant will not be considered for regular graduate status until his score on the GMAT or GRE, a transcript showing proof of attainment of the Bachelor's degree and the transcripts of all other colleges attended have been submitted to the Director of Admissions of the University. The applicant must arrange for transcripts to be submitted by the proper officials of the institutions which he attended. Transcripts in the possession of an applicant cannot be accepted. It is the applicant's responsibility to make arrangements to take the GMAT or GRE prior to the expected date of enrollment and to direct the Educational Testing Service to mail the test score to the Director of Admissions, Florida Technological University.
   b. Enrollment in Business Administration graduate courses (5000/6000 level) is limited to students who have been accepted and classified with regular graduate status for admission categories in the MBA, MS in Business Administration with specialization in accountancy or MA in Applied Economics programs. The College of Business Administration must have the student's completed application for admission on file prior to registration.

UNIVERSITY GRADUATE PROCEDURES

See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies.

MASTER OF BUSINESS ADMINISTRATION

Program Coordinator: W. Reiff, CB 209, Phone 275-2137

The program of study for the Master of Business Administration degree is primarily concerned with the advanced study of broad business concepts and relationships. The
purposes are (a) to develop depth of knowledge of the business functions, (b) to strengthen the analytical tools of the individual for use in research necessary to resolve business problems, (c) to expose the student to decision-making concepts and practices, and (d) to encourage a logical and analytical approach to business problems.

Degree Requirements

2. Prerequisites: The following prerequisites and/or foundation courses must normally be completed before a student may enroll in required/elective 6000 level graduate courses. Students completing their last prerequisite course(s) may register for 6000 level graduate courses in the same quarter if they are classified as regular status graduate students. Quarter hours are shown in parentheses.

   ACC 2304, 2324       Financial Accounting I and II (3, 3)
   or
   ACC 3003                Financial Accounting (5)
   or
   ACC 5004                Financial Accounting Concepts (4)
   BUL 3111                Legal Environment of Business (3)
   or
   BUL 5125                Business Environment and Business Law (3)
   ECO 2023                Principles of Microeconomics (4)
   ECO 2013                Principles of Macroeconomics (4)
   or
   ECO 5055                Economic Concepts (4)
   STA 3023                Fundamentals of Probability and Statistics (4)
   and
   ECO 3411                Business and Economic Statistics (4)
   or
   ECO 5413                Statistics for Business and Economics (4)
   FIN 3403                Finance (5)
   or
   FIN 5405                Financial Concepts (4)
   MAN 3010                Management and Organizational Behavior (3)
   MAN 3151                Human Behavior & Interpersonal Relations (3)
   MAN 3504                Business Operations Management (3)
   or
   MAN 5051                Management and Production Concepts (4)
   MAR 3023                Marketing (5)
   or
   MAR 5055                Marketing Concepts (4)

   Prerequisite courses must normally have been satisfactorily completed within the past five years at an accredited college or university. Prerequisites may be satisfied through completion of the equivalent foundation course or through credit by examination.

3. Required Courses: The following core courses are required.

   ACC 6734                Accounting Analysis          3 hours
   ECO 6111                Economic Analysis of the Firm 3 hours
   ECO 6415                Statistical Models for Business 3 hours
   MAR 6716                Marketing Policy                3 hours
   FIN 6436                Capital Management and Analysis 3 hours
FIN 6426  Financial Management of 
Current Operations  3 hours
MAN 6055  Planning and Control Analysis  3 hours
MAN 6206  Analysis of Organizational Behavior  3 hours
MAN 6814  Operations Research Models for Business  3 hours
MAN 6896  Systems Analysis for Business
Problem Solving  3 hours
MAN 6721  Business Policy and Responsibility  3 hours
MAR 6918  Research Methods  3 hours

4. Restricted Electives: Each student will complete at least nine hours of approved electives from 6000 level courses. Students may make selections from any 6000 level offerings in the College of Business Administration, or, by petition, certain graduate courses which may be open to them in other colleges and approved by the College of Business Administration. A graduate elective course may be substituted for one graduate required course in the student’s undergraduate major area if the student has completed a baccalaureate degree in Business Administration within the previous five years.

5. Thesis: Not required.

6. Examinations: Satisfactory completion of a written comprehensive examination is required for the MBA degree. The comprehensive examination on major areas of study in the program normally will be taken during the final quarter of course work.

Total Quarter Hours  45

MASTER OF SCIENCE: BUSINESS ADMINISTRATION

SPECIALIZATION: ACCOUNTANCY

Program Coordinator: W. Reiff, CB 209, Phone 275-2137

The Master of Science with a specialization in accountancy stresses the development of advanced accounting skills to provide resources for decision making and problem solving in public, private and government accounting. Course work is practice oriented, emphasizing quantitative techniques and computer skills. Courses offered within the MS required program have received approval from the State Board of Accountancy and satisfy all requirements of Rule 21A-8.03 (5th year in accountancy) and Rule 21A-13.03 (professional education).

Degree Requirements


2. Prerequisites: The following prerequisite accounting courses should be completed in addition to the prerequisites listed for the MBA program and MAN 4720 Business Policies (4) or MAN 6721 Business Policy and Responsibility (3) for graduate elective credit.

Prerequisite Undergraduate Accounting Courses:
ACC 2304, 2324  Financial Accounting I, II (3, 3)
or
ACC 3003  Financial Accounting (5)
ACC 3101, 3121, 3141  Intermediate Accounting I, II, III (3, 5, 5)
ACC 3401  Cost Accounting (4)
3. Required Courses: The Master of Science specialization in Accountancy is awarded upon satisfactory completion of a graduate program of 45 quarter hours: 39 hours in the core and 6 hours of graduate elective courses. The required graduate courses for the MS program are as follows:

- **ACC 6805** Contemporary Accounting Theory 5 hours
- **ACC 6735** Computers and Information Systems in Accounting 5 hours
- **ACC 6611** Advanced Auditing 5 hours
- **ACC 6411** Cost Accounting for Management Decisions 5 hours
- **ACC 6511** Taxation 5 hours
- **ACC 6866** Specialized Accounting Problems 5 hours
- **ACC 6918** Research Methods 3 hours
  or
- **MAR 6918** Research Methods 3 hours
- **ECO 6111** Economic Analysis of the Firm 3 hours
- **ECO 6415** Statistical Models for Business 3 hours
- **ECO 5055** Economic Concepts 3 hours
- **ECO 5413** Statistics for Business and Economics 3 hours

4. Restricted Electives. Six hours of graduate course work, including MAN 6721 if no prior course in Business Policy, approved by the College of Business Administration.

5. Thesis: The MS does not require a thesis. However, students wishing to do research may choose among the following options: (1) independent study; (2) a major research project and written report for 6 hours credit (ACC 6918); or (3) a thesis for a maximum of six elective graduate credits.

6. Examinations: Satisfactory completion of an end of program comprehensive examinations is required.

**Total Quarter Hours Required** 45

**MASTER OF ARTS: APPLIED ECONOMICS**

**Program Coordinator:** W. Reiff, CB 209, Phone 275-2137

The program of study for the Master of Arts Degree in Applied Economics is designed to provide specialization in economics for those persons desiring careers as economists in the academic, governmental, business, and financial communities.

**Degree Requirements**


2. Prerequisites: Unless a specific graduate economics course has no undergraduate prerequisites, the following prerequisites (or equivalents) must be completed before enrolling in 6000-level graduate economics courses:
   - **ECO 5055** Economic Concepts
   - **ECO 5413** Statistics for Business and Economics

When classified as a regular graduate student, a student may register
simultaneously for both prerequisite and 6000-level graduate courses providing such 6000-level courses have no specific prerequisites. Undergraduate equivalent prerequisite coursework must have been satisfactorily completed within the past five years at an accredited college or university if used to meet the prerequisites requirement.

3. Required Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 6111</td>
<td>Economic Analysis of the Firm</td>
<td>3</td>
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<tr>
<td>ECO 6115</td>
<td>Price Theory</td>
<td>3</td>
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<tr>
<td>ECO 6204</td>
<td>Aggregate Economics—Income, Unemployment and Growth</td>
<td>3</td>
</tr>
<tr>
<td>ECO 6206</td>
<td>Business Cycles and Forecasting</td>
<td>3</td>
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<tr>
<td>ECO 6415</td>
<td>Statistical Models for Business</td>
<td>3</td>
</tr>
<tr>
<td>ECO 6918</td>
<td>Research Methods</td>
<td>3</td>
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<tr>
<td>or</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>MAR 6918</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

4. Restricted Electives: At least eighteen hours may be taken from elective courses offered by the Department. Up to nine hours of graduate credit may be accepted from coursework offered by other qualified graduate programs upon approval of the Department.

5. Thesis and Internship: A thesis is optional and may not exceed nine hours of graduate credit. Students may also petition to enroll in an internship. The internship is optional and may not exceed six hours of graduate credit. An internship will require enrollment in ECO 6938—Special Topics (3 hours) and ECO 6918—Research Report (3 hours).

6. Examination: Satisfactory completion of a comprehensive examination consisting of an oral defense of the thesis or of the assignments associated with the internship.

Total Quarter Hours Required 45
COLLEGE OF EDUCATION

UNDERGRADUATE PROGRAMS

COMPREHENSIVE K-12
Library Media Specialist (BA)
Physical Education (BA)
Visual Arts Education (BA)

ELEMENTARY EDUCATION
Elementary Education (BA)

SECONDARY EDUCATION
Business Education (Comprehensive) (BA)
English Language Arts Education (BA)
Foreign Language Education (BA)
Mathematics Education (BA)
Science Education (BA)
Social Science Education (BA)
Speech Education (BA)
Technical/Vocational Education (BA)

GRADUATE PROGRAMS

ELEMENTARY EDUCATION
Elementary Education (MA) (M.Ed)
Exceptional Child (MA) (M.Ed)

COMPREHENSIVE K-12
Administration & Supervision (MA) (M.Ed)
Guidance (MA) (M.Ed)
Library Media Specialist (MA) (M.Ed)
Physical Education (MA) (M.Ed)
Visual Arts Education (MA) (M.Ed)
Music Education (MA) (M.Ed)
Reading Specialist (MA) (M.Ed)

SECONDARY EDUCATION
Business Education (Comprehensive) (MA) (M.Ed)
English Language Arts Education (MA) (M.Ed)
Foreign Language Education (MA) (M.Ed)
Mathematics Education (MA) (M.Ed)
Science Education (MA) (M.Ed)
Social Science Education (MA) (M.Ed)
Speech Education (MA) (M.Ed)
Vocational Education (MA) (M.Ed)

DOCTORAL PROGRAMS
Administration & Supervision (Ed.D)
Curriculum & Instruction (Ed.D)
Students who are planning a career in teaching in the elementary or secondary schools should enroll in this College. Programs are offered leading to the Bachelor of Arts, Master of Education and Master of Arts degrees in Education.

The professional program is concerned primarily with the interrelated and interdependent areas of Specialized Preparation and Professional Preparation.

In general, specialized preparation in subject matter areas for secondary education majors is offered by the other colleges, while specialized elementary education content courses are offered by the College of Education.

The professional sequence, a responsibility of the College of Education, is designed for developing:

A. Insights into the processes of school curriculum and organization.
B. Understanding of how learning takes place with methods and procedures needed for successful teaching.
C. An understanding of the society in which schools function.
D. An awareness in the individual of his relationship with students and the community.
E. A realization of the challenges and responsibilities in the field of education and a basic philosophy of education.

Considerable emphasis is given to providing all education majors with an opportunity to have cooperatively planned learning experiences in a laboratory setting, specifically designed to blend realistic practical experience with theoretical knowledge. In most instances elementary and secondary schools in Central Florida serve as educational laboratories for the College of Education.

UNDERGRADUATE CAREER TEACHER PROGRAM

Students are encouraged to enroll in the College of Education as early as the freshman year. Junior transfer students will enter Phase I of the professional education sequence during their first quarter.

The Career Teacher Program consists of three distinct Phases:

PHASE I—TEACHING ANALYSIS

This is required of all education students and designed to acquaint the student with basic teaching procedures, pre-instructional planning, performance evaluation, and the developmental-behavioral characteristics of children. Various aspects of the teaching profession are analyzed, providing a basis for the students deciding whether or not to pursue teaching as a career. Any university student of sophomore level may enroll in Phase I.

PHASE II—DEVELOPMENTAL

Developmental activities are structured for the prospective teacher to develop specific teaching skills and to expand his teaching field knowledge. Laboratory ex-
periences in Phase II are jointly planned by public school personnel and university faculty and are conducted in approved student teaching centers. To be admitted to Phase II a student must have an overall 2.0 academic average, have successfully completed Phase I requirements, and demonstrated competency in written and oral communication skills.

**PHASE III—APPLICATION**

In Phase III the student applies the fundamentals of teaching and academic knowledge attained in Phases I and II. Under the supervision of a selected teacher, the student is responsible for developing and executing plans. A full quarter is devoted to student-teaching. Concurrent enrollment in the seminar, Teaching Strategies, is required. To be admitted to Phase III, a student must have satisfied the requirements for Phase I and Phase II; have a 2.2 average in his area of academic specialization; a 2.0 overall average; be recommended by the Phase II Teaching Team; and be accepted by the office of the Professional Laboratory Program. An application for Phase III, Student Teaching must be submitted at least one quarter before enrollment for Winter and Spring quarters, two quarters ahead for Fall quarter.

**CERTIFICATION FOR TEACHING**

All College of Education undergraduate curricula fulfill State of Florida certification requirements for a Rank III Florida Teaching Certificate. There is an "interstate" agreement with several states for College of Education graduates who desire to teach outside Florida.

**PROFESSIONAL LABORATORY PROGRAM**

Director: H. Haughee, ED 214, Phone 275-2401

The FTU program for students planning a career in teaching is considered innovative and functional because of early and continuous field experience with school children which attempts to blend theoretical consideration with the practical. Cooperative planning and articulation with school personnel assures appropriate activities in educational settings.

**DEPARTMENT OF ELEMENTARY EDUCATION**

Chairman: R. Martin, ED 243, Phone 275-2161, 275-2162.

Faculty: Anderson, Beadle, Bird, Cox, Esler, Green, Harlacher, Hynes, Manning, Merritt, Midgett, Miller, Monteleone, Olson, Palmer, Poe, Sofge, Thompson.

The career Elementary Education Program is planned for students interested in the education of young children, six through twelve years of age. Students who major in elementary education are qualified to teach grades one through six upon graduation and receipt of a Florida teaching certificate.

An elementary education major must have the following preparation: (1) a broad general education (environmental studies); (2) a specialized knowledge of content, techniques and materials needed to teach different elementary school subjects such as art, language arts, mathematics, music, physical education, science and social activities; and (3) professional study which includes planned laboratory activities with children in schools identified as Teacher Education Centers. Center activities are scheduled during the junior and senior years of study and provide for the application and synthesis of theoretical learnings and development of teaching competencies.
**BACHELOR OF ARTS: ELEMENTARY EDUCATION**

### Degree Requirements

1. University graduation requirements  
   (See pages 40 and 56)

2. Special college and/or department requirements  
   (See pages 74 and 75)

3. Required Courses

   **Professional Education**

   **Phase I**
   - EDF 3255 Classroom Management & Learning 4 hours
   - EDF 3603 Teaching Analysis 4 hours

   **Phase II**
   - RED 3012 Basic Foundations of Reading 3 hours
   - EDE 3943 Elem School Student Teaching/ 3 hours  
     Block A
   - EDE 3943 Elem School Student Teaching/ 3 hours  
     Block B
   - EDE 3411 Teaching & Evaluation Elem School 3 hours
   - EDE 3301 Teaching Strategies in Elem School 3 hours

   **Phase III**
   - EDE 3201 Elementary School Curriculum 20 hours
   - EDE 4943 Elem School Student Teaching/ 9 hours  
     Block C
   - EDG 4938 Student Teaching Seminar 3 hours

   **Specialization**
   - MAE 3310 Teaching Math in the Elem School 3 hours
   - MAE 3311 Math Programs in the Elem School 3 hours
   - MUE 3401 Music in the Elementary School 4 hours
   - LAE 3414 Literature for Children 4 hours
   - RED 3310 Reading in the Elementary School 3 hours
   - SCE 3310 Teaching Science in the Elem School 3 hours
   - SSE 3312 Teaching Soc Sci in the Elem School 3 hours
   - LAE 4314 Language Arts in the Elementary School 4 hours
   - ARE 4313 Art in the Elementary School 4 hours
   - RED 4519 Classroom Diagnosis and Treatment of  
     Reading Difficulties 3 hours
   - SCE 4111 Science Programs in the Elem School 3 hours
   - SSE 4113 Social Sci Programs in the Elem School 3 hours
   - HLP 4460 Teaching Elem School Health & Phy Ed 3 hours

4. Restricted Electives (Area of Academic Concentration) A minimum of 12 quarter  
   hours is required in a related field of academic concentration. Elementary Educa-
   tion majors are advised to select courses leading to certification to teach English,  
   mathematics, social sciences, or sciences in the junior high school, which also may  
   increase employability in a middle school or departmentalized elementary school;  
   or Early Childhood Education; or Exceptional Child Education.

5. Electives

   **Total Quarter Hours Required** 180

### AREAS OF SPECIALIZATION

1. Early Childhood Education (Nursery and Kindergarten). In combination with prepa-
ration to teach grades one through six, requirements may be met for preparation/certification to teach kindergarten (9 quarter hour minimum).

2. Exceptional Child Education (Educable Mentally Retarded). In combination with preparation to teach grades one through six, a specialization is available which is concerned with knowledge, methods, and materials essential to teach children with intellectual disabilities (EMR). Completion of the combined program qualifies a student for certification in each area.

3. Music Education. Certification in Music Education is offered cooperatively with the Department of Music, College of Humanities and Fine Arts.
DEPARTMENT OF PHYSICAL EDUCATION
Chairman: J. Powell, ED 144, Phone 275-2595
Faculty: Clark, Cleland, Gergley, Higginbotham, Hunter, H. P. Martin, Renner, Rohter

The Physical Education program offers a comprehensive curriculum designed to certify a student to teach as a physical education specialist in grades K through 12. Areas of study are: (1) Environmental Studies; (2) General Professional Preparation; (3) Area of Specialization; and (4) Electives.

Physical Education major students will be required to complete successfully the Required Professional Courses (Phase I, II, III) as outlined on the next page. Physical Education major students in Phase II will be provided a teacher-coaching experience in Teacher Education Centers during two quarters (one quarter on an elementary level, one level on a middle school-junior high school level) of their junior year. The courses listed in Phase II—Developmental, will be scheduled concurrently.

In Phase III (senior year), the student is enrolled full time for one quarter as a student teacher in an accredited elementary or secondary school under the direction of a selected supervising teacher.

The Department of Physical Education has identified courses acceptable for completing an undergraduate minor. Students desiring to complete a minor should contact the chairman of the Department for information.

BACHELOR OF ARTS: PHYSICAL EDUCATION
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 74 and 78)
3. Required Courses

Professional Education

<table>
<thead>
<tr>
<th>Phase</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>Phase I</td>
<td>EDF 3255</td>
<td>Classroom Management &amp; Learning</td>
<td>4</td>
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<td></td>
<td>EDF 3603</td>
<td>Teaching Analysis</td>
<td>5</td>
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<tr>
<td>Phase II</td>
<td>PET 3461C</td>
<td>Teaching Elementary School PE</td>
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<td>EDE 3943</td>
<td>Elementary School Student Teaching</td>
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<tr>
<td></td>
<td>PET 3420</td>
<td>P.E. &amp; Total School Program</td>
<td>3</td>
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<td></td>
<td>PET 3450C</td>
<td>Physical Education Instructional Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PET 4501C</td>
<td>Measurement &amp; Evaluation in P.E.</td>
<td>3</td>
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<td></td>
<td>ESE 3940</td>
<td>Secondary School Student Teaching</td>
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</tr>
<tr>
<td>Phase III</td>
<td>EDG 4938</td>
<td>Student Teaching Seminar</td>
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<td>EDE 4943</td>
<td>Elementary School Student Teaching</td>
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<tr>
<td>or ARE 4944</td>
<td>Secondary School Student Teaching</td>
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Specialization

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<td>ZOO 3733C</td>
<td>Anatomy</td>
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<td>PEO 3011C</td>
<td>Instructional Analysis of Team Sports</td>
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<tr>
<td>PEO 3341C</td>
<td>Instructional Analysis of Tennis</td>
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<tr>
<td>PEQ 3101C</td>
<td>Instructional Analysis of Aquatics and Tumbling</td>
<td>2</td>
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<tr>
<td>PEP 3201C</td>
<td>Instructional Analysis of Gymnastics</td>
<td>2</td>
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<tr>
<td>PEO 3121C</td>
<td>Instructional Analysis of Golf</td>
<td>2</td>
</tr>
<tr>
<td>PEP 3421C</td>
<td>Instructional Analysis of Wrestling</td>
<td>2</td>
</tr>
<tr>
<td>DAA 3700</td>
<td>Choreography of Contemporary Dance</td>
<td>2</td>
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</tbody>
</table>
DAE 3301 Instructional Analysis of Rhythmics 2 hours
PET 3453 Coaching Theory 3 hours
LEI 3433C School and Community Recreation 3 hours
PET 4340C Kinesiomechanics 3 hours
PET 4370C Exercise Physiology—Cardiovascular 4 hours
PET 4371C Exercise Physiology—Respiratory 4 hours
PET 4230 Human Performance 4 hours
PET 4620C Rehabilitation Training Techniques 3 hours
PET 4410 Organization and Administration of Physical Education 3 hours

4. Restricted Electives
None

5. Electives
17 quarter hours may be used as electives or may be utilized to work towards certification in either or both of the related areas of science or health education.
Total Quarter Hours Required 180

AREAS OF SPECIALIZATION

1. Health Education. Health Education certification may be obtained by completing 27 quarter hours of courses which are offered through the College of Education and various other colleges within the University. For further information, see any Physical Education advisor.

DEPARTMENT OF SECONDARY EDUCATION

Chairman: H. Hall, ED 344, Phone 275-2286
Faculty: Armstrong, Brumbaugh, Clarke, Fowler, Gurney, Harrow, Hogan, Leffler, McGee, E. Miller, Olson, Paugh, Siebert, West

The program in Secondary Education is for prospective teachers who have an interest in working with adolescent students in a specific academic area at the middle, junior or senior high school levels. Major specializations are available in Biology, Business Education, Chemistry, English, Foreign Language, Mathematics, Physics, Social Studies, and Speech.

Students in Secondary Education have teaching laboratory experience for one quarter in the junior year at selected secondary school Teacher Education Centers. Daily attendance at four one-half-day sessions in the practical setting is used to supplement university theory classes. A quarter of full-time student teaching is also required at the senior level. Students are encouraged to clear their working and class schedules during field experience quarter to allow them to devote full time to student teaching.

Technical/Vocational Education

The Technical/Vocational Education degree is for individuals in industrial-technical areas or selected health occupations who wish to teach their vocations in secondary or post-secondary schools. To be eligible for the degree, students must have worked full time in the occupation for at least two years and must demonstrate competence in the areas in which they wish to teach.

A maximum of 45 quarter hours of earned credit, credit by examination or credit granted through licensing may count toward a degree. Associate of Arts and Associate of Science Degree holders must meet all university requirements for the Bachelor of Arts Degree. However, up to 18 quarter hours of the 90 hour senior institution requirement may be waived.
BACHELOR OF ARTS:
BUSINESS EDUCATION (Comprehensive)

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 74 and 79)

3. Required Courses

Professional Education

<table>
<thead>
<tr>
<th>Phase I</th>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td>EDF 3255 Classroom Management &amp; Learning</td>
<td>4</td>
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<tr>
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<td>EDF 3603 Teaching Analysis</td>
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<table>
<thead>
<tr>
<th>Phase II</th>
<th>Course</th>
<th>Hours</th>
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<tr>
<td></td>
<td>BTE 3391 Business Instructional Analysis I</td>
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<td>EES 3321 Teaching Strategies</td>
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<td>EES 3322 Teaching Techniques</td>
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<td>ESE 3940 Secondary School Student Teaching (A)</td>
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<table>
<thead>
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<th>Phase III</th>
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<tr>
<td></td>
<td>EDG 4938 Student Teaching Seminar</td>
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<td>ARE 4944 Secondary School Student Teaching (C)</td>
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CORE

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<th>Course</th>
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<td>ACC 2304 Financial Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACC 2324 Financial Accounting II</td>
<td>3</td>
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<tr>
<td>BTE 1060 Introductory Typewriting</td>
<td>3</td>
</tr>
<tr>
<td>BTE 1061 Type Production I</td>
<td>3</td>
</tr>
<tr>
<td>BTE 1062 Type Production II</td>
<td>3</td>
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<td>BTE 3266 Office Technology</td>
<td>3</td>
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<tr>
<td>BUL 3111 Legal Environment of Business</td>
<td>3</td>
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<tr>
<td>CAP 3001 Comp Funds—Bus I</td>
<td>3</td>
</tr>
<tr>
<td>ECO 2023 Microeconomics</td>
<td>4</td>
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<td>ECO 2013 Macroeconomics</td>
<td>4</td>
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<tr>
<td>ENC 3352 Professional Report Writing</td>
<td>3</td>
</tr>
<tr>
<td>EVT 4066 Principles Vocational Education</td>
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4. Restricted Electives (See specialization requirements listed below)

<table>
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<tr>
<th>Course</th>
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<tr>
<td>RED 4333 Teaching Reading in the Content Areas</td>
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5. Electives

<table>
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<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Total Quarter Hours Required</td>
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AREAS OF SPECIALIZATION

1. Comprehensive

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<tr>
<th>Course</th>
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<tr>
<td>BTE 2063 Principles of Shorthand I</td>
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</tr>
<tr>
<td>BTE 2064 Principles of Shorthand II</td>
<td>3</td>
</tr>
<tr>
<td>BTE 2065 Principles of Shorthand III</td>
<td>3</td>
</tr>
<tr>
<td>BTE 3151 Shorthand Dictation</td>
<td>3</td>
</tr>
<tr>
<td>BTE 3152 Shorthand Transcription</td>
<td>3</td>
</tr>
<tr>
<td>BTE 4265 Office Systems Procedures</td>
<td>3</td>
</tr>
<tr>
<td>BTE 4392 Bus Instructional Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>BTE 4393 Bus Instructional Analysis III</td>
<td>3</td>
</tr>
</tbody>
</table>
2. Basic Business and Accounting

- ACC 3301 Management Accountancy 3 hours
- ACC 3101 Intro Acctg Theory and Practice 3 hours
- BTE 4393 Bus Instructional Analysis III-Accy 3 hours
- CAP 3002 Computer Fund Bus Applications—Bus II 3 hours
- MAN 3010 Management and Organization Behavior 3 hours
- MAR 3023 Marketing 5 hours
- MAR 3503 Consumer Market Behavior 4 hours

BACHELOR OF ARTS:
ENGLISH LANGUAGE ARTS EDUCATION

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 74 and 79)

3. Required courses

   Professional Education

   Phase I
   - EDF 3603 Teaching Analysis 4 hours
   - EDF 3255 Classroom Management & Learning 4 hours

   Phase II
   - EES 3321 Teaching Strategies 4 hours
   - EES 3322 Teaching Techniques 4 hours
   - ESE 3940 Secondary School Student Teaching (A) 3 hours
   - LAE 3335 English Instructional Analysis 4 hours
   - ESE 3940 Secondary School Student Teaching (A) 3 hours

   Phase III
   - EDG 4938 Student Teaching Seminar 3 hours
   - ARE 4944 Secondary School Student Teaching (C) 9 hours

   Composition
   - CRW 2020 Principles of Creative Writing 3 hours
   - ENC 1103 Composition I 4 hours
   - ENC 1135 Exploring Literature through Writing 3 hours
   - ENC 3412 Writing Skills 3 hours
   - LAE 4342 Teaching Language and Composition 3 hours

   Literature
   - LAE 4342 Literature for Adolescents 3 hours
   - LIT 2020 Literary Analysis 3 hours
   - ENL 2011 English Literature to 1625 3 hours
   - ENL 2018 English Literature 1626-1798 3 hours
   - ENL 2025 English Literature 1798-1914 3 hours
   - AML 3101 American Literature 1588-1865 3 hours
   - AML 3107 American Literature 1865-1914 3 hours
   - AML 3111 American Literature since 1914 3 hours
   - ENL 3028 British Literature since 1914 3 hours
   - ENL 4131 Reading in Shakespeare 3 hours
**Language**
- ENG 4550 Tranformational Grammar or Modern English Grammar 3 hours
- LIN 4304 Principles of Linguistics 3 hours

**Speech**
- SPC 1014 Fundamentals of Oral Communications 3 hours
- SPC 3250 Speech and Human Relations 4 hours

**Reading**
- RED 4333 Teaching Reading in Content Areas 3 hours
- ESE 3940 Secondary School Student Teaching (A) 3 hours

**Phase III**
- EDG 4938 Student Teaching Seminar 3 hours
- ARE 4944 Secondary School Student Teaching (C) 9 hours

4. **Restricted Electives**
- 3000-4000 Contemporary Literature Elective 3 hours

5. **Electives**

**Total Quarter Hours Required** 180

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**BACHELOR OF ARTS:**

**FOREIGN LANGUAGE EDUCATION**

**Degree Requirements**

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 74 and 79)

3. **Required courses**

**Professional Education**

**Phase I**
- EDF 3603 Teaching Analysis 4 hours
- EDF 3255 Classroom Management & Learning 4 hours

**Phase II**
- EES 3321 Teaching Strategies 4 hours
- EES 3322 Teaching Techniques 4 hours
- ESE 3940 Secondary School Student Teaching (A) 3 hours
- FLE 3333 Foreign Language Instructional Analysis 4 hours
- FLE 4380 Oral Teaching of Foreign Languages 3 hours

**Phase III**
- ARE 4994 Secondary School Student Teaching (C) 9 hours
- EDG 4938 Student Teaching Seminar 3 hours

4. **Restricted Electives**
   (See Areas of Specialization below)
- RED 4333 Teaching Reading in the Content Areas 3 hours
- 3000-4000 French or Spanish Electives 16 hours

5. **Electives**

**Total Quarter Hours Required** 180
AREAS OF SPECIALIZATION

1. French Language
   A specialization in French Language requires the following courses:
   
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>FLE 3063</td>
<td>Language as Human Behavior</td>
<td>3</td>
</tr>
<tr>
<td>FRE 1100</td>
<td>Elementary Language and Civilization</td>
<td>4</td>
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<td>FRE 1101</td>
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<td>4</td>
</tr>
<tr>
<td>FRE 1102</td>
<td>Elementary Language and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>FRE 2200</td>
<td>Intermediate Language and Civilization</td>
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</tr>
<tr>
<td>FRE 2201</td>
<td>Intermediate Language and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>FRE 2202</td>
<td>Intermediate Language and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>FRE 3240</td>
<td>French Conversation</td>
<td>4</td>
</tr>
<tr>
<td>FRE 3420</td>
<td>French Composition</td>
<td>4</td>
</tr>
<tr>
<td>FRW 3100</td>
<td>Survey of French Literature</td>
<td>4</td>
</tr>
<tr>
<td>FRW 3101</td>
<td>Survey of French Literature</td>
<td>4</td>
</tr>
<tr>
<td>FRW 3102</td>
<td>Survey of French Literature</td>
<td>4</td>
</tr>
<tr>
<td>FRE 4780</td>
<td>French Phonetics and Diction</td>
<td>4</td>
</tr>
</tbody>
</table>

2. Spanish Language
   A specialization in Spanish Language requires the following courses:
   
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLE 3063</td>
<td>Language as Human Behavior</td>
<td>3</td>
</tr>
<tr>
<td>SPN 1100</td>
<td>Elementary Language and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>SPN 1101</td>
<td>Elementary Language and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>SPN 1102</td>
<td>Elementary Language and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>SPN 2230</td>
<td>Intermediate Language and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>SPN 2231</td>
<td>Intermediate Language and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>SPN 2232</td>
<td>Intermediate Language and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>SPN 3240</td>
<td>Spanish Conversation</td>
<td>4</td>
</tr>
<tr>
<td>SPN 3420</td>
<td>Spanish Composition</td>
<td>4</td>
</tr>
<tr>
<td>SPN 4780</td>
<td>Spanish Phonetics and Diction</td>
<td>4</td>
</tr>
<tr>
<td>SPW 3100</td>
<td>Survey of Spanish Literature</td>
<td>4</td>
</tr>
<tr>
<td>SPW 3101</td>
<td>Survey of Spanish Literature</td>
<td>4</td>
</tr>
<tr>
<td>SPW 3102</td>
<td>Survey of Spanish Literature</td>
<td>4</td>
</tr>
</tbody>
</table>

BACHELOR OF ARTS:
MATHEMATICS EDUCATION

Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 74 and 79)
3. Required Courses

PROFESSIONAL EDUCATION

Phase I
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 3255</td>
<td>Classroom Management &amp; Learning</td>
<td>4</td>
</tr>
<tr>
<td>EDF 3603</td>
<td>Teaching Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

Phase II
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EES 3321</td>
<td>Teaching Strategies</td>
<td>4</td>
</tr>
<tr>
<td>EES 3322</td>
<td>Teaching Techniques</td>
<td>4</td>
</tr>
<tr>
<td>ESE 3940</td>
<td>Secondary School Student Teaching (A)</td>
<td>3</td>
</tr>
<tr>
<td>MAE 3330</td>
<td>Mathematics Instructional Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>
Phase III
ARE 4944  Secondary School Student Teaching (C)  9 hours
EDG 4938  Student Teaching Seminar  3 hours

Mathematics
COP 2510  Algorithmic Process  3 hours
MAC 1142  Precalculus Mathematics I  4 hours
MAC 1143  Precalculus Mathematics II  4 hours
MAC 2154  Analytic Geometry  3 hours
MHF 2300  Logic and Proof in Mathematics  4 hours
MAS 3203  Introduction to Number Theory  3 hours
MAC 3103  Linear Algebra I  4 hours
MAC 3104  Linear Algebra II  4 hours
MAC 3311  Calculus I  4 hours
MAC 3312  Calculus II  4 hours
MAC 3313  Calculus III  4 hours
MTG 3212  Foundations of Geometry  4 hours
MTG 4233  Non Euclidean and Projective Geometry  3 hours
STA 3023  Fundamentals of Probability and Statistics  4 hours
MAE 4636 C  Mathematics Laboratory Methods  3 hours

4. Restricted Electives
RED 4333  Reading in Content Areas  3 hours
3000-4000  Mathematics Electives  6 hours

5. Electives
Total Quarter Hours Required  180

BACHELOR OF ARTS:
SCIENCE EDUCATION

Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 74 and 79)
3. Required Courses

PROFESSIONAL EDUCATION

Phase I
EDF 3255  Classroom Management & Learning  4 hours
EDF 3603  Teaching Analysis  4 hours

Phase II
EES 3321  Teaching Strategies  4 hours
EES 3322  Teaching Techniques  4 hours
ESE 3940  Secondary School Student Teaching (A)  3 hours
SCE 3330  Science Instructional Analysis  4 hours

Phase III
ARE 4944  Secondary School Student Teaching (C)  9 hours
EDG 4938  Student Teaching Seminar  3 hours

4. Restricted Electives
RED 4333  Teaching Reading in the Content Areas  3 hours
Science Electives 3000-4000 level (See Areas of Specialization)  12 hours

5. Electives
Total Quarter Hours Required  180
# AREAS OF SPECIALIZATION

1. **Biology**
   A specialization in Biology requires the following courses:

   **Biological Sciences**
   - **BOT 1010** General Botany 4 hours
   - **BSC 1010** Basic Biology 5 hours
   - **BSC 3043** Principles of Ecology 4 hours
   - **BSC 3063** Genetics 4 hours
   - **MCB 2013C** General Microbiology 4 hours
   - **SCE 4374** Science Laboratory Teaching 3 hours
   - **ZOO 1010C** General Zoology 4 hours
   - **ZOO 3733C** Human Anatomy 5 hours

2. **Chemistry**
   The specialization of Chemistry requires the following courses:

   **Chemistry**
   - **CHM 1034** General Chemistry—Fundamentals 5 hours
   - **CHM 1200** General Chemistry—Organics 3 hours
   - **CHM 1023** General Chemistry—Biochemistry 3 hours
   - **CHM 1205L** General Chemistry Laboratory—Organic 1 hour
   - **CHM 2046L** Chemistry Fundamentals Laboratory 1 hour

3. **Physics**
   The specialization of Physics requires the following courses:

   **Physics**
   - **AST 1005** Astronomy 4 hours
   - **PHY 2040** General Physics I 4 hours
   - **PHY 2041** General Physics II 4 hours
   - **PHY 2042** General Physics III 4 hours
   - **PHY 2041L** General Physics Laboratory I 1 hour
   - **PHY 2042L** General Physics Laboratory II 1 hour
   - **PHY 3101** Modern Physics for Engineers 3 hours
   - **PHY 3421** Optics and Wave Motion for Engineers 3 hours
   - **PHY 3752C** Physics of Scientific Instruments 4 hours
PHY 3822L  Intermediate Physics Laboratory  4 hours
SCE 4374  Science Laboratory Teaching  3 hours

Mathematics
MAC 1142  Precalculus Mathematics I  4 hours
MAC 1143  Precalculus Mathematics II  4 hours
MAC 2154  Analytic Geometry  3 hours
MAC 3311  Calculus I  4 hours
MAC 3312  Calculus II  4 hours
MAC 3313  Calculus III  4 hours

BACHELOR OF ARTS:
SOCIAL SCIENCE EDUCATION

Degree Requirements
1. University graduation requirements
(See pages 40 and 56)

2. Special college and/or department requirements
(See pages 74 and 79)

3. Required Courses

Professional Education

Phase I
EDF 3255  Classroom Management & Learning  4 hours
EDF 3603  Teaching Analysis  4 hours

Phase II
EES 3321  Teaching Strategies  4 hours
EES 3322  Teaching Techniques  4 hours
ESE 3940  Secondary School Student Teaching (A)  3 hours
SCE 3330  Science Instructional Analysis  4 hours

Phase III
ARE 4944  Secondary School Student Teaching (C)  9 hours
EDG 4938  Student Teaching Seminar  3 hours

Social Studies
AMH 3310  American Social History  4 hours
AMH 3350  American Political History  4 hours
AMH 3370  American Economic History  4 hours
ECO 2000  Fundamentals of Economics  3 hours
EUH 2000  Ancient and Medieval Civilization  4 hours
EUH 2001  European Civilization from the Renaissance to the French Revolution  4 hours
EUH 2002  Modern European Civilization  4 hours
GEO 3370  Resource Geography  3 hours
POS 2041  American National Government  4 hours
SOC 2000  General Sociology  4 hours
SSE 4633  Trends in Secondary School Social Science  3 hours

4. Restricted Electives
RED 4333  Teaching Reading in the Content Areas  3 hours
3000-4000  Geography Elective  4 hours
Student must have additional credits in history, political science, and sociology with at least 12 credits in one area.  20 hours

5. Electives
Total Quarter Hours Required  180

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BACHELOR OF ARTS: SPEECH EDUCATION

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 74 and 79)

3. Required courses

Professional Education

Phase I
- EDF 3255 Classroom Management & Learning 4 hours
- EDF 3603 Teaching Analysis 4 hours

Phase II
- EES 3321 Teaching Strategies 4 hours
- EES 3322 Teaching Techniques 4 hours
- ESE 3940 Secondary School Student Teaching (A) 3 hours
- SED 3335 Speech Instructional Analysis 4 hours

Phase III
- ARE 4944 Secondary School Student Teaching (C) 9 hours
- EDG 4938 Student Teaching Seminar 3 hours

Speech and Communications
- COM 1000 Basic Communication 4 hours
- COM 3311 Communication as a Behavioral Science 4 hours
- LIN 2200 English Phonetics and American Dialects 5 hours
- ORI 2001 Interpretation I 3 hours
- SED 4371 Directing Extracurricular Speech Activities 3 hours
- SPC 1014 Fundamentals of Oral Communication 3 hours
- SPC 3425 Group Interaction and Decision Making 4 hours
- SPC 3511 Argumentation and Debate 4 hours
- SPC 3542 Persuasion: Motivation 4 hours
- SPC 3605 Speech Composition 4 hours

4. Restricted Electives
- RED 4333 Reading in the Content Areas 3 hours
- 3000-4000 Electives taken from SPC 3250, SPC 3301, SPC 3601, SPC 4350
  Students must have an additional twelve credits in Drama, Journalism or Speech Pathology 12 hours

5. Electives

Total Quarter Hours Required 180

BACHELOR OF ARTS
TECHNICAL/VOCATIONAL EDUCATION

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 74 and 79)

3. Required courses

Professional Education
Phase I
EDF 3255 Classrom Management & Learning 4 hours
EDF 3603 Teaching Analysis 5 hours

Phase II
EVT 4066 Philosophy and Principles of Technical Education 4 hours
EVT 4165 Curriculum Planning for Vocational Education 4 hours
EVT 4380 Methods of Teaching Technical/Vocational Subjects 5 hours
EVT 4565 Analysis of Learning as Applied to Vocational Education 4 hours

Phase III
EDG 4941 Directed Field Experience 12 hours
LIS 4310 Instructional Media Production 4 hours
LIS 4428 Utilization of Educational Media 4 hours
EVT 4767 Evaluation of Occupational Education 4 hours

4. Restricted Electives (See the Areas of Specialization)
RED 4333 Reading in the Content Area 3 hours

5. Electives
Total Quarter Hours Required 180

AREAS OF SPECIALIZATION

1. Health Occupations
Students may complete a specialization in a Health Occupations area by meeting the requirements for teacher certification set forth in the Florida Accreditator Code and by submitting evidence of two years work experience at the journeyman, technician, or trained employee level. 45 hours

2. Industrial-Technical
Students may complete a specialization in a skilled trade area by successfully passing both the written and the performance portions of the Occupations Competency Test in that area. There is a $125 administration fee charged for the test and it is normally given in the Fall and Spring Quarters. The test must be successfully completed before the student is eligible for EDG 4941, Directed Field Experience. Two years of work experience is required.

3. Specific skilled trade tests are available in the following Occupational Industries:

Automotive Food
Aviation Graphic Arts
Building Machine
Drafting Metal
Electrical Personal Service
Electronics Wood
Department of Teaching Analysis

Chairman: D. Hernandez, ED 320, Phone, 275-2426

Teaching Analysis serves three basic functions with the College of Education. First, it provides courses which meet University and state certification requirements in the Foundations area. Specifically, EDF 3603 Teaching Analysis (4 QH) meets social foundations requirements and EDF 3255, Classroom Management and Learning (4 QH) meets psychological foundations requirements. Successful completion of these courses meets requirements of Phase I, Analysis of Teaching; which is prerequisite for entry into Phase II, Development. Second, Teaching Analysis provides three courses designed to meet Advanced Environmental Studies requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 4003</td>
<td>Overview of Education</td>
<td>3</td>
</tr>
<tr>
<td>LIS 3003</td>
<td>Library Resources and Materials</td>
<td>3</td>
</tr>
</tbody>
</table>

Third, Teaching Analysis houses two K-12 programs leading to the Bachelor of Arts Degree in Visual Arts Education and Library/Media Specialist.
# BACHELOR OF ARTS: LIBRARY MEDIA SPECIALIST

## Degree Requirements

1. University graduation requirements  
   (See pages 40 and 56)

2. Special college and/or department requirements  
   (See pages 74 and 79)

3. Required courses

### Professional Education

#### Phase I—Analysis

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EDF 3603</td>
<td>Teaching Analysis</td>
<td>4</td>
</tr>
<tr>
<td>EDF 3255</td>
<td>Classroom Management &amp; Learning</td>
<td>4</td>
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</table>

#### Phase II—Development

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>EDG 3032</td>
<td>Humanistic Aspects of School Programs</td>
<td>4</td>
</tr>
<tr>
<td>LIS 4428</td>
<td>Utilization of Educational Media</td>
<td>4</td>
</tr>
<tr>
<td>EDE 3943</td>
<td>Student Teaching</td>
<td>3</td>
</tr>
<tr>
<td>ESE 3940</td>
<td>Student Teaching</td>
<td>3</td>
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</table>

#### Phase III—Application

<table>
<thead>
<tr>
<th>Course</th>
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<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EDG 4938</td>
<td>Student Teaching Seminar</td>
<td>3</td>
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<tr>
<td>ARE 4944</td>
<td>Student Teaching</td>
<td>9</td>
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</table>

### Library

<table>
<thead>
<tr>
<th>Course</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>LIS 3016</td>
<td>Foundations of Librarianship</td>
<td>4</td>
</tr>
<tr>
<td>LIS 3412</td>
<td>Media Center Operation Org. Media Center</td>
<td>4</td>
</tr>
<tr>
<td>LIS 4422</td>
<td>Administration Factors and Media</td>
<td>4</td>
</tr>
<tr>
<td>LIS 4731</td>
<td>Organization of Media and Information</td>
<td>4</td>
</tr>
<tr>
<td>LIS 4540</td>
<td>Non-Book Materials in School</td>
<td>4</td>
</tr>
<tr>
<td>LIS 4510</td>
<td>Development of Media Collections</td>
<td>4</td>
</tr>
<tr>
<td>LIS 4601</td>
<td>Reference Sources and Services</td>
<td>4</td>
</tr>
<tr>
<td>LIS 4310</td>
<td>Production of Materials for Media Center</td>
<td>4</td>
</tr>
<tr>
<td>RED 4333</td>
<td>Reading in the Secondary School</td>
<td>4</td>
</tr>
</tbody>
</table>

4. Restricted Electives

   Electives in supportive areas to be selected on advice of Library/Media counselor.  

5. Electives

   Total Quarter Hours Required: 180

# BACHELOR OF ARTS: VISUAL ARTS EDUCATION

## Degree Requirements

1. University graduation requirements  
   (See pages 40 and 56)

2. Special college and/or department requirements  
   (See pages 74 and 79)

3. Required courses

### Professional Education

#### Phase I

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 3255</td>
<td>Classroom Management &amp; Learning</td>
<td>4</td>
</tr>
<tr>
<td>EDF 3603</td>
<td>Teaching Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ARE 4313</td>
<td>Elementary School Art</td>
<td>3</td>
</tr>
<tr>
<td>ARE 4344</td>
<td>Secondary School Art</td>
<td>3</td>
</tr>
</tbody>
</table>
Phase II—Development
   EDG 3032 Humanistic Aspects of School Programs  4 hours
   EDE 4943 Student Teaching                    3 hours

Block B
   ESE 3940  Student Teaching                    3 hours
   LIS 4428  Utilization of Educational Media  4 hours

Phase III—Application
   ARE 4944 Student Teaching                    9 hours
   EDG 4938 Student Teaching Seminar            3 hours

Production
   ART 2201C Design                            3 hours
   ART 2202C Design                            3 hours
   ART 2203C Design                            3 hours
   ART 2300C Drawing                           3 hours
   ART 2301C Drawing                           3 hours
   ART 3230C Design in Advertising             3 hours
   ART 3600C Photography                       3 hours
   ART 3510C Painting                          3 hours
   ART 3400C Printmaking                       3 hours
   ART 3110C Ceramics                          3 hours
   ART 4130C Fiber, Fabrics                    3 hours
   ART 4166C Metal, Wood                       3 hours

Criticism. Select two (2).
   ARH 2050 Art History                        3 hours
   ARH 2051 Art History                        3 hours
   ARH 2052 Art History                        3 hours
   ARH 4800 Theory and Criticism               3 hours

Curriculum
   ARE 4440 2-D Instructional Material         5 hours
   ARE 4443 3-D Instructional Material         5 hours
   ARE 4441 Graphics Instructional Materials  5 hours
   ARE 4439 Crafts in the Schools              4 hours

4. Restricted Electives
   Must be selected with advice of Visual Arts counselor and may vary based on prerequisite deficiencies.

5. Electives
   Total Quarter Hours Required                180
COLLEGE OF EDUCATION
GRADUATE PROGRAMS

MASTER OF ARTS; MASTER OF EDUCATION

Program Coordinator: N. McLain, ED 115, Phone 275-2436

The College of Education offers advanced courses for students, who have a baccalaureate degree, to meet certificate requirements for professional or personal updating, for transfer to other institutions (subject to the acceptance criteria of the other institution), or for earning the Master of Education or Master of Arts degree.

Certification in the specialities may be pursued independently of a degree program.

The degree programs for the Florida Rank II, Post Graduate certificate are designed to develop a high level of proficiency in educational personnel, in three categories:

A. Core—expansion of background in research, learning developmental and measurement factors.

B. Curriculum—improvement of skill in program planning and instructional techniques.

C. Subject field content—extension of knowledge in his specialization field.

ADMISSION REQUIREMENTS

1. University Admission Requirements
   (See pages 40 and 51)

2. College or Program Admission Requirements
   For M.Ed., Course work completed for Rank III State of Florida Teaching Certificate.

Degree Requirements


2. Prerequisites: None for M.Ed.; for M.A., contact the program coordinator.

3. Required Courses: EDF 6918, Research Methods, 3 quarter hours.

4. Restricted Electives: None specified.

5. Research Report: Required; 4 hours of credit.


<table>
<thead>
<tr>
<th>Total Quarter Hours Required</th>
<th>45-60 (varies with specialty)</th>
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</thead>
<tbody>
<tr>
<td>Thesis Option</td>
<td>None</td>
</tr>
<tr>
<td>Non-Thesis Option</td>
<td>None</td>
</tr>
</tbody>
</table>

Areas of Specialization

Administration & Supervision
Business Education (Comprehensive)
Elementary Education
English Language Arts Education
Exceptional Child
Foreign Language Education
Guidance
Library Media Specialist
Mathematics Education
Music Education
Physical Education
Reading Specialist
Science Education
Social Science Education
Speech Education
Visual Arts Education
Vocational Education

COOPERATIVE DOCTORAL PROGRAM

Florida Atlantic University in Boca Raton, Florida, offers two doctoral programs through the College of Education. One is in administration and supervision, which is for people who are interested in decision-making positions in school organizations. The second degree, in curriculum and instruction, having an emphasis on a content subject field discipline, is designed primarily for the junior college teacher, although it could be used in other teaching situations. The subject field areas possible in curriculum and instruction are limited to the fields in which a master's degree is already offered at either FTU or FAU.

The College of Education at Florida Technological University is joining FAU in the doctoral program to offer students an opportunity to do at least some of their work in Orlando, rather than having to move or commute to the Boca Raton area for their entire program. The degree, Doctor of Education, will be awarded by Florida Atlantic University.

Contact the College of Education Graduate Program Coordinator for further information.
College of Engineering

UNDERGRADUATE PROGRAMS

ENGINEERING
Civil Engineering (BSE)
Electrical Engineering (BSE)
Engineering Mathematics & Computer Systems (BSE)
Environmental Engineering (BSE)
Industrial Engineering (BSE)
Mechanical Engineering (BSE)

ENGINEERING TECHNOLOGY
Design Technology (BET)
Electronics Technology (BET)
Environmental Control Technology (BET)
Operations Technology (BET)

GRADUATE PROGRAMS

ENGINEERING
Civil Engineering (MSE)
Electrical Engineering (MSE)
Engineering (MS)
Engineering Mathematics & Computer Systems (MSE)
Environmental Engineering (MSE)
Industrial Engineering (MSE)
Mechanical Engineering (MSE)

ENVIRONMENTAL SYSTEMS MANAGEMENT (MSESMM)

DOCTOR PROGRAM

Electrical Engineering (Ph.D)
PROFESSIONAL COLLEGE OF ENGINEERING

The Professional College of Engineering at Florida Technological University was formally organized by the Engineering faculty in the Fall of 1974. The objective of the Professional College of Engineering is to produce well qualified, competent graduates from outstanding accredited programs for the practice of engineering and to conduct research and service responsive to the State of Florida and National needs. To achieve high professional status, the Professional College of Engineering has developed a unique and outstanding educational program to serve the people of Florida by providing engineering education in specifically selected professional disciplines.

ENGINEERING CURRICULUM

The Engineering curriculum is directed toward professional objectives which are best met by completing the baccalaureate degree program followed by additional professional education at the graduate level leading to the Master of Science in Engineering.

The satisfactory completion of an engineering curriculum of a minimum of 192 quarter hours, including environmental studies courses, an engineering core curriculum, and both required and elective courses of study in an engineering option of the student's choice, leads to the degree of Bachelor of Science in Engineering. Graduates of the College of Engineering may pursue a wide variety of careers in private practice, industry, education, and government. As of Fall 1977, it is the policy of the Professional College of Engineering that all graduates from the Engineering Curriculum who receive the Bachelor of Science in Engineering or Master of Science in Engineering degrees must have taken the Fundamentals of Engineering examination (Examination of the Florida State Board of Professional Engineers and Land Surveyors or equivalent) as a graduation requirement. This policy will apply to all students entering FTU as of Fall 1977.

Students who wish to be admitted to full freshman standing in engineering studies in the College should present certain secondary school units in addition to the minimum University requirements. A total of 3½ units is required in mathematics, including advanced algebra, geometry, and trigonometry. Calculus is recommended. The laboratory sciences chosen must include at least one unit in physics and one in chemistry. One unit of biology is strongly recommended.

Students who have omissions or deficiencies in subject matter preparation may be required to complete additional university credit course work which may not be applied toward an engineering degree. The most common deficiencies that must be removed before beginning regular engineering course work are algebra, trigonometry, general physics, English and general chemistry.

Subject to the general grade and residence requirements of the University, provisional credit will be granted for transferred course work equivalent to that required in Florida Technological University's engineering program. These provisional credits will become final only after the student has demonstrated his ability to do satisfactory work at the University. Transfer credits in pre-engineering from a junior college will be used to satisfy freshman and sophomore level requirements only. Typically, students who have completed the A.A. degree (or equivalent education) with calculus, chemistry, physics, engineering graphics, and a course in computer science (with FORTRAN) can complete the B.S.E. program in two additional years. The status of a student and the
specific credits acceptable toward his degree will be determined by the Dean of the College.

ENGINEERING TECHNOLOGY CURRICULUM

Satisfactory completion of an engineering technology curriculum of 192 quarter hours, including environmental studies courses, an engineering technology core curriculum, and required and elective courses in a selected technology module of the student's choice, leads to the degree of Bachelor of Engineering Technology. Technology graduates also may seek a wide variety of careers in private practice, industry, and government. Programs of study are applications oriented and are designed to assist the student in attainment of his career objectives.

Students who wish to be admitted to the engineering technology program must possess an Associate of Science (or equivalent education) degree in an appropriate engineering technology area. The engineering technology program provides junior and senior year education. Freshman and sophomore year technology education must be taken at a community college or equivalent. Typically students who have completed the A.S. degree in technology should complete the BET program in two additional years. The status of a student and the specific credits acceptable toward his degree will be determined by the Dean of the College. Provisional credits accepted for transferred course work will become final only after a student has demonstrated his ability to do satisfactory work at the University. Students from engineering programs may transfer into the engineering technology program at the junior level.

STUDENT PERFORMANCE

Prior to enrolling in courses at the 3000 level, each student must: (1) receive approval from the office of the Dean of Engineering, and (2) secure from his advisor an approved course of study for his remaining work. Generally, students with a 2.0 grade point average (C average), or higher will receive approval.

Counseling is provided in order that the student may be aided in making his choice of major. Required and elective courses for each area are listed later in this Bulletin and changes or substitutions may be made only with the approval of the Dean.

Any student whose written or spoken English in any course is unsatisfactory may be reported by the instructor to the Dean. The Dean may assign supplementary work, including additional course work, consistent with the needs of the student. The granting of a degree may be delayed until the work is satisfactorily completed.

A student enrolled in the College as an undergraduate must fulfill all University degree requirements including the Environmental Studies Program, as well as the specialized curriculum requirements for the particular degree option being pursued. To be certified for graduation, a student must achieve a "C" grade point average (2.0) overall and in the courses in his major (option).

BACHELOR OF SCIENCE IN ENGINEERING DEGREE PROGRAM

Engineering is one of the most important evolutionary forces in civilization today. The professional engineer should assume a leading role not only in the conceptual and planning stages but also in the design, manufacturing, construction, operation, and management phases of various engineering facilities and programs. At the same time, the professional engineer should understand that engineering innovation is a means of solving problems in our society and accept a large measure of social responsibility for significant engineering developments.

The professional engineer is the key individual in a team of technical specialists
which includes engineering design specialists, engineering operations and management specialists, and engineering technicians. It is the purpose of Florida Technological University's engineering program to provide the broad university level educational opportunities requisite for preparing qualified individuals to make effective contributions through careers in engineering and applied science in our technologically oriented society.

The principal areas of study in the engineering curriculum are devoted to the basic sciences, mathematics and the fundamentals of engineering problem solving. These courses are not training courses for any of the mechanical or manipulative skills, but rather are planned to provide preparation for development, planning, design, research, graduate work; and with certain electives, for operation, production, testing, maintenance and management. This program prepares the student for professional registration, and for the pursuit of graduate work in engineering. In addition, basic engineering programs are increasingly being considered as appropriate preparation for advanced study in other professional areas, e.g., law, medicine, architecture. For assistance and counsel in planning a program, each student will be assigned an advisor from the instructional staff in his chosen area of interest.

ENGINEERING CORE REQUIREMENTS

The engineering core consists of basic engineering sciences subject matter and is common to all options. Because this requirement is a substantial part of the Bachelor's degree program, it gives the student time to become adjusted and to choose a field of specialization for which he is best suited.

COP 3215 Programming and Numerical Methods 3 hours
EGN 1111 Engineering Graphics 3 hours
EGN 1380, 1381 Chemical Foundations of Engineering 6 hours
EGN 1510 Creative Design 4 hours
EGN 2382 Engineering Concepts 4 hours
EGN 3311 Engineering Analysis-Statics 4 hours
EGN 3321 Engineering Analysis-Dynamics 4 hours

1Includes scientific requirements and advanced program electives of the Environmental Studies

EGN 3331 Mechanics of Materials 5 hours
EGN 3343 Thermodynamics 4 hours
EGN 3353 Fluid Mechanics 4 hours
EGN 3363 Structure and Properties of Materials 4 hours
EGN 3373 Principles of Electrical Engineering 4 hours
EGN 3375 Electrical Devices and Systems 4 hours
EGN 3383 Electrical Science 4 hours
EGN 3613 Engineering Economics Analysis 3 hours
EGN 3703 Systems Analysis 3 hours
or
EGN 4714 Linear Control Systems 4 hours
EGN 3704 Engineering and the Environment 3 hours
EGN 4624 Engineering Administration 3 hours
EGN 4634 Operations Research 3 hours
ENC 3355 Professional Report Writing 3 hours
MAC 2154 Analytic Geometry 3 hours
MAP 3305 Differential Equations 4 hours
MAC 3311, 3312, 3313 Calculus 12 hours
MAC 3314 Intermediate Calculus 4 hours
DEPARTMENT OF CIVIL ENGINEERING AND ENVIRONMENTAL SCIENCES

Chairman: J.P. Hartman, EN 410, Phone 275-2841
Faculty: Block, Brown, Carroll, Cooper, Fagan, Jenkins, Kersten, McLellan, Taylor, Wanielista, Yousef

The Department of Civil Engineering and Environmental Sciences offers an option in Environmental Engineering and an option in Civil Engineering. The Environmental Engineering option is concerned primarily with the interaction of man and his environment, and the planning, design, and control of systems for environmental quality management, with emphasis on the water environment. The Civil Engineering option is primarily concerned with fundamental civil engineering design and analysis skills in such areas as structures, soil mechanics, sanitary engineering, and transportation. Environmental and civil engineers are responsible for research, development, planning, design, and construction of structures and processes that form the basis of contemporary civilization.

Programs of study are available within these options which enable the student to pursue an integrated sequence of courses in major fields. These include not only basic and fundamental civil and environmental engineering disciplines, but also specialized support courses in areas of environmental and water resources engineering, structures and geotechnical engineering, and transportation and urban systems engineering. These course reflect contemporary developments and trends in these engineering disciplines.

The curriculum in Environmental Engineering (leading to a B.S.E. degree) is fully accredited by the Engineers’ Council for Professional Development.

BACHELOR OF SCIENCE IN ENGINEERING:
CIVIL ENGINEERING

Degree Requirements
1. University Graduation Requirements
   (See page 40)
2. Environmental Studies Requirements
   (See page 56)
3. Engineering Core Requirements
   (See page 98)
4. Required Courses
   CES 4124 Structural Engineering Analysis 4 hours
   CES 4605 Structural Steel Design (4) 4 hours
   or CES 4704 Structural Concrete Design (4)
   ECI 4305 Geotechnical Engineering I 4 hours
   ENV 4404 Environmental Engineering—Water Supply 4 hours
   ENV 4504 Environmental Engineering—Wastewater 4 hours
   TTE 4004 Transportation Engineering 4 hours
   TTE 4504 Urban Planning 3 hours
5. Restricted Electives

Technical Electives are to be courses consistent with department objectives and chosen with the approval of the student's faculty advisor and department chairman. 12 hours

6. Electives

None

Total Quarter Hours Required 192

BACHELOR OF SCIENCE IN ENGINEERING:
ENVIRONMENTAL ENGINEERING

Degree Requirements
1. University Graduation Requirements
   (See page 40)
2. Environmental Studies Requirements
   (See page 56)
3. Engineering Core Requirements
   (See page 98)
4. Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EES 4202</td>
<td>Environmental Engineering—Chemical Foundations I</td>
<td>3</td>
</tr>
<tr>
<td>EES 4204</td>
<td>Environmental Engineering—Chemical Foundations II</td>
<td>3</td>
</tr>
<tr>
<td>ENV 4119</td>
<td>Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>ENV 4404</td>
<td>Environmental Engineering—Water Supply</td>
<td>4</td>
</tr>
<tr>
<td>ENV 4434</td>
<td>Sanitary Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>ENV 4504</td>
<td>Environmental Engineering—Wastewater</td>
<td>4</td>
</tr>
</tbody>
</table>

5. Restricted Electives

Technical Electives are to be courses consistent with department objectives and chosen with the approval of the student's faculty advisor and department chairman. 19 hours

6. Electives

None

Total Quarter Hours Required 192

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMMUNICATION SCIENCES

Chairman: B. Mathews, EN 315, Phone 275-2786
Faculty: Dimitriadis, Erickson, Harden, McCarter, Mallette, Patz, Petrasko, Phillips, Riad, A., Riad, S., Simons, Towle, Walker

Electrical Engineers are primarily concerned with the development and utilization of devices and systems which are based on electrical phenomena. The range of application includes computer systems, electronics, control systems, electrical power utilization, communication systems, medical instrumentation, etc. The electrical engineer can find professional challenges in virtually every facet of modern technology.

The option in Electrical Engineering is designed to present the basic electrical engineering principles which are common to this broad spectrum of application. In addition, courses are offered which present in-depth studies of specific electrical,
engineering subdisciplines such as computer engineering, electrical networks and electronics, electromagnetic fields and microwaves, electromechanics and control, power transmission and utilization, communication and information theory, and solid state systems and devices.

Many modern scientific developments are either essentially electrical in character or depend on electrical equipment and technique. Electrical Engineering graduates will find a broad employment opportunity in the field since it enters into much of industry and service where power is utilized, intelligence transmitted, and control exercised over physical, chemical, or mechanical operations. The curriculum in Electrical Engineering (leading to the B.S.E. degree) is fully accredited by the Engineers' Council for Professional Development.

BACHELOR OF SCIENCE IN ENGINEERING:
ELECTRICAL ENGINEERING

Degree Requirements
1. University Graduation Requirements
   (See page 40)
2. Environmental Studies Program
   (See page 56)
3. Engineering Core Requirements
   (See page 98)
4. Required Courses
   EEL 3122C  Electrical Networks  4 hours
   EEL 3307C  Electronic Engineering  4 hours
   EEL 3470  Electromagnetic Fields  4 hours
   EEL 4342C  Logical Component Design  4 hours
   EEL 3502C  Signal Analysis and Communications  4 hours
5. Restricted Electives
   Technical Electives are to be courses consistent with department objectives and chosen with the approval of the student's faculty advisor and department chairman. 18 hours
6. Electives
   None
Total Quarter Hours Required 192

ENGINEERING MATHEMATICS AND
COMPUTER SYSTEMS

Chairman: C. Bauer (Acting) EN 412, Phone 275-2236
Faculty: Bauer, Carroll, Hagedoorn, Klee, Patz, Schrader, Towle

In contemporary professional engineering practice, and in research and development activities there is an increasing need for engineers with a high degree of training and capability in the application of mathematics and computers to the modeling, simulation and solution of complex technical problems. Many of our modern industries and governmental organizations are involved in the design and analysis of highly complex equipments and systems often requiring rigorous mathematical treatment which can only be carried out effectively through the use of modern, high speed, digital/analog/hybrid computer facilities. The computer has become an indispensable partner to the aerospace systems designer, the microelectronic circuit designer, the environmental systems analyst, the industrial manager, and many other professional
engineering oriented activities. Thus, students majoring in Engineering Mathematics and Computer Systems will enjoy a broad spectrum of challenging opportunities.

The option is inter-disciplinary and allows considerable flexibility in tailoring programs to fit individual student interest. The curriculum in Engineering Mathematics and Computer Systems is fully accredited by the Engineers' Council for Professional development.

**BACHELOR OF SCIENCE IN ENGINEERING: ENGINEERING MATHEMATICS AND COMPUTER SYSTEMS**

**Degree Requirements**

1. University Graduation Requirements  
   (See page 40)

2. Environmental Studies Program  
   (See page 56)

3. Engineering Core Requirements  
   (See page 98)

4. Required Courses
   - ECM 4124 Engineering Mathematical Systems 3 hours
   - ECM 4504 Mini-Computers in Engineering Systems 4 hours
   - ECM 4814 Real Time Mini-Computer Systems 4 hours
   - EEL 4342 Logical Component Design 4 hours
   - EGN 4714 Linear Control System 4 hours
   - ESI 4144 Engineering Applications of Computer Methods 4 hours
   - ESI 4503 Numerical Methods in Systems Analysis 3 hours

5. Restricted Electives  
   Technical Electives are to be courses consistent with department objectives and chosen with the approval of the student's faculty advisor and department chairman. 13 hours

6. Electives  
   None

Total Quarter Hours Required 192

**DEPARTMENT OF INDUSTRIAL ENGINEERING & MANAGEMENT SYSTEMS**

**Chairman:** C. Bauer (Acting), EN 412, Phone 275-2236  
**Faculty:** Doering, Gambrell, Hosni, Klee, Linton, Park, Schrader, White

The option in Industrial Engineering is concerned principally with the design, improvement, and installation of integrated systems of men, materials, and equipment for operations through the application of the principles of the engineering, mathematical, physical, and behavioral sciences.

The program of study available within this option enables the student to pursue an integrated series or sequence of courses in the major field which includes not only basic and fundamental courses but specialized courses as well, in the areas of management standards development, production and inventory control, project management, work analysis and design, management information systems, computer simulation, operations research, industrial facilities planning and design, and human engineering. These specialized courses reflect the contemporary developments and trends in each of these areas with emphasis on uses of the digital computer in appropriate courses.
There is a growing tendency on the part of industry, government and institutions to select engineering personnel for managerial positions. Because of this the IEMS courses are oriented to systems management principles and concepts so as to enable the Industrial Engineering graduate to accept and succeed in these opportunities. The curriculum in Industrial Engineering (leading to the B.S.E. degree) is fully accredited by the Engineers' Council for Professional Development.

BACHELOR OF SCIENCE IN ENGINEERING: INDUSTRIAL ENGINEERING

Degree Requirements
1. University Graduation Requirements
   (See page 40)
2. Environmental Studies Program
   (See page 56)
3. Engineering Core Requirements
   (See page 98)
4. Required Courses
   EIN 3315 Management Standards 4 hours
   EIN 4116 Industrial Information Systems 3 hours
   EIN 4243 Human Engineering 3 hours
   EIN 4332 Management Control Systems 3 hours
   EIN 4364 Industrial Facilities Planning and Design 4 hours
   EIN 4503 Numerical Methods in Systems Analysis 3 hours
   ESI 4524 System Simulation With Digital Computers 3 hours
5. Restricted Electives
   Technical Electives are to be courses consistent with department objectives and chosen with approval of the student's faculty advisor and department chairman. 16 hours
6. Electives
   None
   Total Quarter Hours Required 192

DEPARTMENT OF MECHANICAL ENGINEERING AND AEROSPACE SCIENCES

Chairman: R. Evans, EN 115, Phone 275-2416
Faculty: Beck, Chang, Hagedoorn, Minardi, Nimmo, Nuckolls, Rapson, Smith, Varney, Ventre, Wall

The Department of Mechanical Engineering and Aerospace Sciences is primarily concerned with dynamic physical systems such as transportation, production and energy conversion. Because such systems involve an energy source, the mechanical or aerospace engineer is concerned with the application of the basic laws of the engineering sciences to the conversion, transfer and control of the energy. When dealing with problems of this nature, the engineer must consider the economic constraints and the social implications of the solutions which he proposes.

The Mechanical Engineering option provides the student with the opportunity to pursue his educational objectives within the framework of this broad theme. Primary emphasis is given to the departmental subdisciplines of aerospace sciences, measurements systems engineering, mechanical systems design and control, energy conversion and power systems, thermal sciences and engineering acoustics.
The program is specifically designed to give the student a broad-based undergraduate engineering sciences program in order that he will have sufficient knowledge to converse with specialists in other fields of engineering and to analyze on his own the more basic problems in these fields. By judiciously selecting courses from the departmental subdisciplines, a firm foundation is laid in order that the student will obtain the theoretical tools and the design methodology to pursue successfully a career in the mechanical or aerospace engineering professions. The Curriculum in Mechanical Engineering (leading to the B.S.E. degree) is fully accredited by the Engineers' Council for Professional Development.

**BACHELOR OF SCIENCE IN ENGINEERING:**
**MECHANICAL ENGINEERING**

**Degree Requirements**

1. University Graduation Requirements
   (See page 40)

2. Environmental Studies Program
   (See page 56)

3. Engineering Core Requirements
   (See page 98)

4. Required Courses
   
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EML 3106</td>
<td>Thermodynamics of Mechanical Systems</td>
<td>4</td>
</tr>
<tr>
<td>EML 3262</td>
<td>Kinematics and Kinetics of Machines</td>
<td>3</td>
</tr>
<tr>
<td>EML 3303</td>
<td>Measurement Systems</td>
<td>3</td>
</tr>
<tr>
<td>EML 3502</td>
<td>Machine Design and Analysis</td>
<td>4</td>
</tr>
<tr>
<td>EML 4142</td>
<td>Heat Transfer</td>
<td>4</td>
</tr>
<tr>
<td>EML 4222</td>
<td>Vibration Analysis</td>
<td>4</td>
</tr>
<tr>
<td>EML 4505</td>
<td>Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>EML 4412L</td>
<td>Mechanical Engineering Laboratory</td>
<td>2</td>
</tr>
</tbody>
</table>

5. Restricted Electives
   Technical Electives are to be courses consistent with department objectives and chosen with the approval of the student's faculty advisor and department chairman. 11 hours

6. Electives
   None

Total Quarter Hours Required 192

**DEPARTMENT OF ENGINEERING TECHNOLOGY**

**Chairman:** R. Denning, EN 118, Phone 275-2268
**Faculty:** Bullard, Griffith, Holbaugh, Hubler, Osborne

The Engineering Technology Degree Program at FTU includes only the upper division (junior and senior years) and is designed primarily for the student who has completed an A.S. degree in Engineering Technology or an equivalent program at a community college. The community college two-year associate of science program is designed to provide the student with the training necessary to become an engineering technician. The upper division Bachelor of Engineering Technology program at Florida Technological University is designed to advance the engineering technician to the engineering technologist level.

The four year engineering technology graduate will provide a vital link in the engineering—fabrication/construction—facility operations chain. He will be practice
and applications oriented while at the same time, possessing a broad and comprehensive education in the field. As such he will be key individual in teams of technical specialists dealing with the environment today. Completion of the required curriculum will prepare qualified individuals to make significant contributions to society and will allow them to progress into responsible technical and management positions.

Principal areas of study in the engineering technology curriculum, building on a sound base attained through the AS degree, will include mathematics and communications. In addition, substantial additional work will be taken in the technical sciences and technical specialty. The courses will include theory and practice along with training. Hence they will provide a sound technical base for subsequent work. For assistance and counsel in planning a program, each student will be assigned an advisor to assist him in selecting the best course sequence to meet his career objectives.

The areas of specialization (modules) in Engineering Technology are concerned principally with the details of design, maintenance, operation, environmental monitoring and the fabrication/construction functions. The work of the technologist is in direct support of the engineer and the emphasis is on material results and details as constructed, within the broader conceptual and systems processes of the engineer.

Four engineering technology modules (options) are offered as shown. The courses listed in each module are recommended for all students electing to pursue that option. Any deviation from the recommended course in the option must be approved by the Department Chairman and the Dean.

**BACHELOR OF ENGINEERING TECHNOLOGY**

**Degree Requirements**

1. University graduation requirements  
   (See page 40)

2. Environmental Studies Program (See page 56)  
   Basic (54 hours)  
   Community College (39 hours)  
   FTU (15 hours)  
   Advanced (15 hours)

3. Required Courses  
   The program to be taken at FTU requires a total of 192 quarter hours. Assuming good articulation with the Associate of Science Program being transferred, the following courses will be required:

   Transferred from Community College  
   Lower Level Technical Specialty  
   Environmental Studies (Includes Science & Math)  
   Related Studies  
   TOTAL (Maximum transfer)  

   Additional Environmental and Related Studies  
   ENC 3355 Professional Report Writing  
   MAC 3253-3254 Applied Calculus  
   Advanced ESP program  
   Additional Science Environment  

   1 Includes algebra, trigonometry, basic science, English, speech or report writing, humanities and social sciences. At least one course each in chemistry, physics and computer science should be completed at the Community College. Credit shown is maximum transferable under this program.

   2 Includes one course in computer programming.
ECO 2000 Economics and Man 3 hours
TOTAL 27 hours

Engineering Technology Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETE 4111</td>
<td>Electricity and Electronics</td>
<td>5</td>
</tr>
<tr>
<td>ETG 3502</td>
<td>Applied Statics</td>
<td>4</td>
</tr>
<tr>
<td>ETG 4510</td>
<td>Applied Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>ETG 4530</td>
<td>Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>ETI 3421</td>
<td>Materials and Processes</td>
<td>4</td>
</tr>
<tr>
<td>ETI 3671</td>
<td>Technical Economic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ETM 3310</td>
<td>Applied Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ETM 4201</td>
<td>Applied Thermodynamics</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>32</td>
</tr>
</tbody>
</table>

Area of Specialization (see below) 31 hours
Total Minimum Hours Required
(Community College 96, FTU 96) 192 hours

AREAS OF SPECIALIZATION

1. Design Technology Module
The specialization in Design Technology will present the student with the knowledge and skills needed for application to problems concerning specifications, calculations, and procedures involving the design, redesign, testing and operations of mechanical parts, units and assemblies. Typical community college AS Degree programs used for entrance to FTU’s Design Technology specialization are Mechanical, Drafting Design, Aerospace and Air Conditioning Technologies.

Required Courses (20 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETC 4410</td>
<td>Structural Design</td>
<td>4</td>
</tr>
<tr>
<td>ETE 4735</td>
<td>Electro-Mechanical Design</td>
<td>4</td>
</tr>
<tr>
<td>ETI 3400</td>
<td>Product Design</td>
<td>4</td>
</tr>
<tr>
<td>ETM 4403</td>
<td>Applied Kinematics</td>
<td>4</td>
</tr>
<tr>
<td>MAP 3401</td>
<td>Problem Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

Upper Level Technical Electives (11 hours)
At least two courses must be selected from the courses listed below.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCN 3761</td>
<td>Contracts and Specifications</td>
<td>3</td>
</tr>
<tr>
<td>ETG 4910</td>
<td>Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>ETM 4512</td>
<td>Applied Design of Machine Elements</td>
<td>4</td>
</tr>
<tr>
<td>ETM 4590</td>
<td>Design Integration</td>
<td>3</td>
</tr>
<tr>
<td>ETM 4750</td>
<td>Air Conditioning Design</td>
<td>4</td>
</tr>
</tbody>
</table>

2. Electronics Technology Module
The specialization in Electronics Technology is designed to present the electronics principles beyond the first two years of study that are essential for installation, operation, maintenance and design support or electrical/electronics equipment and facilities. Typical community college AS Degree programs used for entrance to FTU’s Electronics Technology specialization are Electronic, Electrical and Instrumentation Technologies. A minimum of 20 quarter hours of basic electronics must be included in the AS Degree program.

Required Courses (20 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETE 3122</td>
<td>Electronics Circuits</td>
<td>4</td>
</tr>
<tr>
<td>ETE 3632</td>
<td>Digital Circuits</td>
<td>4</td>
</tr>
<tr>
<td>ETE 4161</td>
<td>Senior Systems Lab</td>
<td>2</td>
</tr>
<tr>
<td>ETE 4326</td>
<td>Feedback Control</td>
<td>3</td>
</tr>
</tbody>
</table>
ETE 4422  Communications Systems  3 hours
MAP 3401  Problem Analysis  4 hours

Electives (11 hours)
At least two courses must be selected from the courses listed below.

ETE 4432  Antennas and Propagation  3 hours
* ETE 4541  Power Transmission  4 hours
* ETE 4562  Power Utilization  4 hours
ETE 4661  Computer Systems  4 hours
ETE 4735  Electro-Mechanical Design  4 hours

*Note: ETE 4541 or ETE 4562 may be substituted for either, but not both ETM 3310 or ETG 4530.

3. Environmental Control Technology Module
The specialization in Environmental Control Technology is designed to give the stu­
dent upper level courses in water, wastewater, air pollution, solid wastes, sampling
and analysis, and control processes that are essential for environmental operations
control. Typical community college AS Degree programs used for entrance to FTU’s
Environmental Control Technology specialization are Environmental Control, Civil,
and Chemical Technologies.

Required Courses (19 hours)

ETI 4700  Occupational Safety  3 hours
ETM 3314  Hydraulics/Hydrology  3 hours
EVS 3220  Wastewater Treatment  3 hours
EVS 3240  Water Supply Systems  3 hours
EVS 4233  Treatment Plant Analysis and Control  3 hours
MAP 3401  Problem Analysis  4 hours

Electives (12 hours)
At least two courses must be selected from the courses listed below.

BCN 3761  Contracts and Specifications  3 hours
EVS 4101  Environmental Sampling and Analysis  3 hours
EVS 4362  Air Pollution Control  3 hours
EVS 4682  Solid Wastes Management  3 hours

4. Operations Technology
The module in Operations Technology is designed to present the management
operations, supervisory and methods courses that are essential for operations con­
trol in the sales, service, manufacturing and construction industries. The curriculum
is designed to accept a broad range of AS Degree backgrounds and develop the
management and supervisory skills necessary to produce a marketable skill. AS
Degree programs with emphasis on Architectural, Building Construction, Aero­
space, Automotive Services, Civil, Computer, Fire Control, Drafting and Graphics,
Industrial Management or Supervision, Quality Control and Surveying Technologies
are normally acceptable.

Required Courses (19 hours)

ETI 3611  Work Analysis  3 hours
ETI 3651  Computer Methods in Industry  3 hours
ETI 3654  Cost Estimating and Analysis  3 hours
ETI 4640  Process Planning and Scheduling  3 hours
ETI 4700  Occupational Safety  3 hours
MAP 3401  Problem Analysis  4 hours

Electives (12 hours)
At least two courses must be selected from the courses below.

BCN 3761  Contracts and Specifications  3 hours
ETC 4410  Structural Design  4 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ETI 3440</td>
<td>Product Design</td>
<td>4</td>
</tr>
<tr>
<td>ETI 4110</td>
<td>Industrial Quality Control</td>
<td>3</td>
</tr>
<tr>
<td>ETI 4452</td>
<td>Plant Maintenance Operations</td>
<td>3</td>
</tr>
<tr>
<td>ETM 4750</td>
<td>Applied Air Conditioning</td>
<td>4</td>
</tr>
</tbody>
</table>
The College of Engineering offers the Master of Science, the Master of Science in Engineering, the Master of Science in Environmental Systems Management and the Doctor of Philosophy (jointly with the University of Florida) in Electrical Engineering degrees.

These programs are designed to provide for advanced professional engineering education (MSE) or specialized education in selected areas (MS or MSES). It is the objective of the College of Engineering to produce well-qualified, competent graduates from outstanding accredited programs for the professional practice of engineering and to conduct research and service responsive to the needs of the State of Florida and the Nation.

It has long been recognized that the minimum educational qualification for entry into the engineering profession is the five-year B.S.E./M.S.E. program. This unique "professional school" program is geared to educating practitioners of the profession. The program is clearly in the interests of protecting the health, safety, and general welfare of the public and recognizes the unique statutory (Florida Statutes Chapter 471) and accreditation (Engineers' Council for Professional Development) requirements imposed on those who teach and administer the program.

MASTER OF SCIENCE IN ENGINEERING

Program Coordinator: G. Schrader, EN 212, Phone 275-2156

Advanced professional engineering competencies are achieved through the M.S.E. program. This program is intended for those who have attained an engineering bachelor's degree. Based on the very strong undergraduate, inter-departmental, college-wide engineering core plus option approach, this program leads to the M.S.E. degree, also based on an interdisciplinary approach, but at the department level. Thus the effective and efficient unified core approach is continued through the master's level.

The Master of Science in Engineering programs are fully accredited by the Engineers' Council for Professional Development (ECPD).

Admission Requirements
1. University Admission Requirements
   (See pages 40 and 51)

2. College Admission Requirements
   a. Applicants for the M.S.E. program must have the B.S.E. or equivalent from an ECPD accredited engineering curriculum in the appropriate discipline area.
   b. Applicants for the M.S. or M.S.E.S.M. programs must present baccalaureate credentials appropriate to the specialized area of study.

Degree Requirements
1. University Graduate Policies and Procedures
   See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies.

2. Prerequisites: Engineering Bachelor's Degree or Equivalent.

3. Required Courses: At least one advanced course in each departmental sub-discipline beyond B.S.E. requirements 19-26 hours
4. Restricted Electives: Additional subdiscipline-specialty courses 9-15 hours

Additional advanced mathematics, computer systems, natural sciences, engineering sciences, or appropriate supportive areas (beyond B.S.E. core requirements or equivalent) 9-15 hours

5. Thesis or Research Report: Students must be registered in the quarter in which application for graduation is filed 9 or 3 hours

6. Examination: Oral defense of thesis or research report is required. Satisfactory completion of comprehensive examination may be required.

Total Quarter Hours Required (M.S.E.) Program 45

**MSE AREAS OF SPECIALIZATION**

Departmental Specialization Core Course Requirements

Each student will select, with the approval of his graduate committee, departmental core courses as noted below for the professional options. Additional course work may be selected in one of the subdiscipline specialty areas to provide program depth. The student is referred to the course description section of the catalog for further information.

1. **CIVIL ENGINEERING OPTION:** The core requirements will be met by the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CES 6606</td>
<td>Steel Design (3)</td>
<td>3</td>
</tr>
<tr>
<td>or CES 6607</td>
<td>Concrete Design (3)</td>
<td></td>
</tr>
<tr>
<td>ECI 5215</td>
<td>Hydraulic Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ECI 5306</td>
<td>Geotechnical Engineering II</td>
<td>4</td>
</tr>
<tr>
<td>ENV 6436</td>
<td>Water and Wastewater Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5204</td>
<td>Traffic Engineering (4)</td>
<td></td>
</tr>
<tr>
<td>or TTE 5720</td>
<td>Design Elements of Transportation Systems (4)</td>
<td>4</td>
</tr>
</tbody>
</table>

2. **ELECTRICAL ENGINEERING OPTION:** At least one course from each of five subdiscipline groupings other than the chosen specialization area.

- Communications Systems
- Systems Control
- Digital Systems
- Electromagnetic Theory
- Electronic Circuits
- Optical Communications Systems
- Signal and Circuit Theory

3. **ENGINEERING MATHEMATICS AND COMPUTER SYSTEMS OPTION:** The core requirements for all students will be met by the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECM 5135</td>
<td>Analytical Methods in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECM 5235</td>
<td>Analytical Methods in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EEL 6349</td>
<td>Computer System Design</td>
<td>3</td>
</tr>
<tr>
<td>EEL 6717</td>
<td>Digital Computer Systems</td>
<td>3</td>
</tr>
<tr>
<td>MAP 5405</td>
<td>Engineering Mathematical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ECM 5505C</td>
<td>Minicomputer Application in Engineering</td>
<td>4</td>
</tr>
</tbody>
</table>

4. **ENVIRONMENTAL ENGINEERING OPTION:** The student will take the following Environmental Engineering Core and Specialty Courses.
In addition, the student will take at least one course from each of the two following areas:

1. Transportation and Urban Systems Engineering
2. Structures and Geotechnical Engineering

5. INDUSTRIAL ENGINEERING OPTION: The core requirements for all students will be met by the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIN 5117</td>
<td>Management Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>EIN 6215</td>
<td>System Safety</td>
<td>3</td>
</tr>
<tr>
<td>EIN 6337</td>
<td>Production and Inventory Control</td>
<td>4</td>
</tr>
<tr>
<td>EIN 6357</td>
<td>Engineering Economic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ESI 5217</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ESI 5234</td>
<td>Engineering Reliability &amp; Qual. Assur.</td>
<td>3</td>
</tr>
<tr>
<td>ESI 6316</td>
<td>Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>STA 5326</td>
<td>Statistics for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

6. MECHANICAL ENGINEERING OPTION: The core requirements for all students will be met by the courses listed:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CES 5102</td>
<td>Intermediate Mechanics of Materials</td>
<td>4</td>
</tr>
<tr>
<td>EML 5271</td>
<td>Intermediate Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>EML 6154</td>
<td>Conduction Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>Convection Heat Transfer</td>
<td>4</td>
</tr>
<tr>
<td>EML 6155</td>
<td>Radiation Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>EML 6306</td>
<td>Experimental Measurements</td>
<td>3</td>
</tr>
<tr>
<td>EML 6530</td>
<td>Principles of Design</td>
<td>3</td>
</tr>
<tr>
<td>EML 6609</td>
<td>Environmental Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>EML 6710</td>
<td>Gas Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>Mechanics of Viscous Flow</td>
<td>4</td>
</tr>
</tbody>
</table>

MASTER OF SCIENCE

Program Coordinator: G. Schrader, EN 212, Phone 275-2156

This graduate program is designed to provide the competent student in engineering or other selected fields an opportunity to specialize in a particular subject area within engineering. Normally this objective may be attained through the satisfactory, completion of graduate-level course work and research endeavor.

Admissions Requirements

1. University Admission Requirements
   (See pages 40 and 51)
2. Program Admission Requirements
(See page 96 for College Administration Requirements)

**Degree Requirements**

1. University Graduate Policies and Procedures
   See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies

2. Prerequisites: Baccalaureate credentials appropriate to the specialized area of study.

3. Required Courses
   24-30 hours

4. Restricted Electives: Additional advanced mathematics (beyond MAC 3314), computer systems, natural sciences, engineering sciences, or appropriate supportive areas. 12 hours

5. Thesis or Research Report: 9 or 3 hours

6. Examinations: Oral defense of thesis or research report is required. Satisfactory completion of a comprehensive examination may be required.

Total Quarter Hours Required (M.S. Program) 45

**MASTER OF SCIENCE IN ENVIRONMENTAL SYSTEMS MANAGEMENT**

Program Coordinator: G. Schrader, EN 212, Phone 275-2156

The College of Engineering offers graduate work leading to the Master of Science in Environmental Systems Management. The program is designed to provide for advanced professional and specialized education in selected areas of engineering and science related to the management and control of our natural environment.

This program provides for the preparation of engineering specialists for service in environmental related occupations by allowing concentrated study in a limited number of subdisciplines. The program is open to those who have closely related to the environmental sciences and environmental or systems engineering.

**Admission Requirements**

1. University Admission Requirements
   (See pages 40 and 51)

2. Program Admission Requirements
   (See page 96 for College Admission Requirements)

**Degree Requirements**

Degree requirements vary depending upon student interests and background. Interested students should consult the chairman of the Civil Engineering and Environmental Sciences Department.

Total Quarter Hours Required 45

**DOCTOR OF PHILOSOPHY DEGREE**

The College of Engineering is participating in a Cooperative Doctoral program in Electrical Engineering with the University of Florida. Interested students should consult with the chairman of the Electrical Engineering and Communication Sciences Department.
COLLEGE OF HUMANITIES & FINE ARTS

UNDERGRADUATE PROGRAMS

Art (BA)
Art (BFA)
English (BA)
Foreign Language Combination (BA)
French (BA)
History (BA)
Humanities (BA)
Humanities and Fine Arts (BA)
Music (BA)
Music Education (BA)
Philosophy (BA)
Spanish (BA)
Theatre (BA)

GRADUATE PROGRAMS

English (MA)

COLLEGE OF HUMANITIES AND FINE ARTS

Dean: C. Micarelli, FA 509D, Phone 275-2251
Assistant Dean: H. Smith, FA 509B, Phone 275-2600

The College of Humanities and Fine Arts endeavors, along with the other five colleges of the University, to fulfill the general aims of Florida Technological University. This College has the responsibility of preparing specialists in the principal disciplines of the humanities and the fine arts. The following major study programs are presently offered: art, English, foreign languages (French, Spanish), history, humanities, music, philosophy and theatre. Any one of these majors may be combined with a core of Business Administration courses designed to prepare a student for administrative work within his major. This Humanities and Fine Arts-Administration program is described below. Besides these majors, courses are offered in film, German, Italian, religion and Russian. In addition to preparing specialists in the various disciplines of the College, the College of Humanities and Fine Arts cooperates with the other five colleges of the University in the Environmental Studies Program in offering electives suitable to all students.

PRE-LAW

The College of Humanities and Fine Arts also offers sound preparation for subsequent study in Law. The quality of undergraduate education for the legal profession, according to the Association of American Law Schools, is grounded in three basic skills and insights: comprehension and expression in words, critical understanding of the human institutions and values with which the law deals, and creative power in thinking.

In defining a proper prelaw curriculum, the Association stresses breadth and flexibility in undergraduate prelaw education, and cites specifically History, Philosophy and English, among others, as valid academic preparation.

The College of Humanities and Fine Arts, in its seven departments, provides programs intended to develop the skills and insights fundamental to the later attainment of legal competence. History, Philosophy, English, and the major in Humanities
and Fine Arts seem particularly appropriate programs of study for the student considering law school. See additional information in History, English, and Humanities, Philosophy and Religion. (Contact Person: E. Kallina, FA 505A, Phone 275-2224.)

**INTERDISCIPLINARY STUDIES**

The College of Humanities and Fine Arts offers a major in Humanities and Fine Arts for the student who desires a broad exposure to courses in the College without the need to specialize in one department. It is a flexible program whose purpose is a liberal education and general background in the Humanities and Fine Arts. The course requirements for the College Major are 30 upper division hours in one department and 36 upper division hours in two other departments with not less than 12 in any one. A typical program follows:

| Basic Program (basic ESP, electives, or AA Degree) | 90 hours |
| Main area                                         | 30 hours |
| Secondary area                                     | 24 hours |
| Secondary area                                     | 12 hours |
| Upper Division ESP                                 | 15 hours |
| Electives                                         | 9 hours  |
| Total                                             | 180 hours|

Contact Dr. Harry Smith (FA 509B, Phone 275-2600) for information on this major.

**HFA-ADMINISTRATION PROGRAM**

The College of Humanities and Fine Arts in conjunction with the College of Business Administration offers a program which combines a major in one of the areas of the College of Humanities and Fine Arts with a number of selected courses in the College of Business Administration. This combination of concentrations will prepare the student to assume an administrative position in one of the fields of the Humanities and Fine Arts and will also afford the opportunity of going on for a Master’s Degree in Business. The required administration courses are in addition to the requirements for a major in one of the college’s departments. (Contact Person: E. Hotaling, FA 140, Phone 275-2867)

**PROFICIENCY REQUIREMENT**

All students, both freshmen and transfer students, who enroll for the first time in the College of Humanities and Fine Arts during or after the Fall Quarter of 1976 are required to pass an English writing proficiency examination in order to graduate. This examination is given every quarter and should be completed by transfer students before the last 45 quarter hours of course work are begun and by four-year students during their sophomore year. Students must register with the English Department by the end of the second week of classes during the quarter in which they plan to take the examination. Details of the nature of the test, time of testing, return of corrected tests etc. may be obtained in the English Department.

A student enrolled in the College of Humanities and Fine Arts must fulfill all of the University requirements and the requirements set by the department of his major.

To be certified for graduation, a student must achieve a “C” (2.0 grade point average) in courses of his major field.
MINOR

The College of Humanities and Fine Arts and the College of Social Sciences jointly offer a minor in Afro-American Studies consisting of a minimum of 24 quarter hours. Required courses: AMH 3570, ENG 4574, LIT 4324, SOC 3720. The student should be advised by the Program advisor prior to registration.


DEPARTMENT OF ART

Chairman: S. Lotz, FA 525, Phone 275-2676
Faculty: Chavda, Eyfells, Gaudnek, Miyamoto, Skoglund, Wellman

The curriculum in Art provides thorough grounding in visual expression and an opportunity for specialized professional preparation in art history and in the studio areas of drawing, painting, printmaking, photography, graphic design, film, sculpture, and ceramics, and combination specializations in drawing-printmaking, sculpture-ceramics and photography-printmaking.

The Department of Art offers programs leading toward both the Bachelor of Arts (B.A.) degree and the Bachelor of Fine Arts (B.F.A.) degree.

The University reserves the right to hold for exhibition purposes work done in classes.

MINOR

The Department of Art offers a minor consisting of a minimum of 33 quarter hours.

Required courses: ARH 2050, 2051, 2052; ART 2201, 2202, 2203, 2300; 12 quarter hours of art studio specialization at the 3000-4000 level. The minor in Art can be taken in any of the existing studio concentrations except in Art History.

BACHELOR OF ARTS: ART

Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See page 113)
3. Required Courses
   Varies with Specialization
4. Restricted Electives
   Varies with Specialization
5. Electives
   To be selected primarily from upper level courses outside the Department, with the approval of the student's advisor.
   Total Quarter Hours Required 180

AREAS OF SPECIALIZATION

1. Art History
   Required Courses
   ARH 2050,
   2051, 2052 History of Art I, II, III 9 hours
Restricted Electives

a) Any two:
   ART 2201C, 2202C, 2203C Design Fundamentals I, II, III 6 hours
   ART 3630C Film Design

b) Any one:
   ARH 4020 Developing Visual Creativity 4 hours
   PHI 3800 Aesthetics
   THE 4057 Principles of Motion Picture Art

c) Studio Courses
   Any two studio courses 6 hours

Specialization
   3000 and 4000 level courses in Art History 21 hours

Language and comprehensive Examination
   A satisfactory grade in a comprehensive art history examination and a
   reading knowledge of one foreign language are required.

Total Quarter Hours in Art courses or approved cognates—46 hours

2. Art (Studio Areas)

Required Courses
   ART 2201C, 2202C Design Fundamentals, I, II 6 hours
   ART 2300, 2301C, 3330C Drawing Fundamentals I, II, Intermed. Draw I 9 hours
   ARH 2050, 2051, 2052 History of Art I, II, III 9 hours

Restricted Electives

a) Either
   ART 2203C Design Fundamentals III or 3 hours
   ART 3630C Film Design 3 hours

b) Any one:
   ARH 4020 Developing Visual Creativity 4 hours
   PHI 3800 Aesthetics
   THE 4057 Principles of Motion Picture Art

c) Art History
   Any 3000 and 4000 level Art History course 3 hours

d) Upper Division
   Electives in Art Specialization
   3000 and 4000 level courses in one Studio Area, not to include
   any required courses stated above (see Areas of Studio
   Specialization below) 11 hours

Portfolio Requirement
   For the B.A. degree a selective portfolio of work, representing the student’s
   accomplishment in the major Studio Specialization and acceptable to the
   Studio Faculty, will be submitted during the final Senior quarter.

Total Quarter Hours in Art courses or approved cognates—60 hours

Areas of Studio Specialization: Ceramics, Drawing, Film, Graphic Design, Painting,
   Photography, Printmaking, Sculpture
BACHELOR OF FINE ARTS: ART

The B.F.A. degree is recommended for those students who successfully petition for admission to ART 4965 and who intend to pursue work in the Arts at the graduate level.

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See page 113)

3. Required Courses
   ARH 2050, 2051, 2052 History of Art I, II, III 9 hours
   ART 2201C, 2202C, 2203C Design Fundamentals I, II, III 9 hours
   ART 3630C Film Design 3 hours
   ART 2300C, 2301C Drawing Fundamentals I, II 6 hours
   ART 3330C, 3331C, 3332C Intermediate Drawing I, II, III 9 hours
   ART 4965 Senior Studio and Exhibition* 3 hours

4. Restricted Electives
   a) ART History and Theory
      Any 3000 and 4000 level Art History and Theory courses 14-15 hours
   b) Any one:
      PHI 3800 Aesthetics 4 hours
      THE 4057 Principles of Motion Picture Art
   c) Upper Division Electives in Art 11-12 hours
   d) Specialization
      3000 and 4000 level courses** in one Studio Area, not to include any required courses listed above (see Areas of Studio Specialization below) 21 hours

5. Electives
   To be selected primarily from upper level courses outside the Department, with the approval of student's advisor.

   Total Quarter Hours in Art courses or approved cognates—90 hours
   Total Quarter Hours Required—180 hours


* The procedure for admission to ART 4965 (Senior Studio and Exhibition) requires a formal application and portfolio submission by the student to the Department Chairman and the Studio Faculty, no earlier than the first quarter of the student's senior year (upon completion of 135 quarter hours). After successfully petitioning for admission to ART 4965, the student must complete no less than 45 quarter hours at FTU, of which at least 20 quarter hours must be in Art courses. A grade of C or better in ART 4965 is required for graduation.

** The combination specializations in Drawing and Printmaking, Sculpture and Ceramics, and Photography and Printmaking require 15 quarter hours of upper division work in each half of the combinations: a total of 30 quarter hours for the combination.
DEPARTMENT OF ENGLISH

Chairman: R. Grove, FA 432, Phone 275-2212
Faculty: Adicks, Barnes, Browne, Combs (Emeritus), Donnelly, Hartman, McCown, Omans, Price, Schiffhorst, Sommer, Umphrey, Wyatt

The FTU English Department is responsible for the effective teaching of literature in English, including World Literature, as well as expository and creative writing. It serves not only the special needs of those students concentrating in literature or in writing but also the broad needs of the University by offering courses in expository writing and literature to students from other departments.

The Department of English offers a pre-law program which stresses skill in writing, language, and literature. This program offers training that will increase the student's chance of law school entry and effective performance while in law school. For further information please see the Department Chairman.

MINOR

The Department of English offers a minor consisting of a minimum of 24 quarter hours.

Required courses: ENC 3412; English courses from the 3000/4000 level equally divided between literature and writing courses. The student should select courses in consultation with an advisor from the Department of English.

BACHELOR OF ARTS: ENGLISH

Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See page 113)
3. Required Courses
   (See Literature Concentration, Writing Concentration or Linguistic Concentration below)
4. Restricted Electives
   (See Literature Concentration, Writing Concentration or Linguistic Concentration below)
5. Electives
   To be selected primarily from upper level courses with the approval of the student's advisor.
6. Foreign Language Requirement
   Proficiency in one modern foreign language must be shown in one of the following ways: passing a proficiency exam; presenting four years of high school credit in one language; completing 24 quarter hours in one language; completing 12 quarter hours in one language (in which case an additional 12 hours of upper-level English courses are required); completing 36 quarter hours in one language (in which case there is a 12 hours reduction in required upper division English electives)
   Total Quarter Hours Required 180
AREA OF SPECIALIZATION

1. Literature. The following courses are required for this specialization:

LIT 2020  Literary Analysis  3 hours
ENL 2011  Survey of English Literature to 1625  3 hours
ENL 2018  Survey of English Literature 1626-1798  3 hours
ENL 2025  Survey of English Literature 1798-1914  3 hours
AML 3101  Survey of American Literature 1588-1865  3 hours
AML 3107  Survey of American Literature 1865-1914  3 hours
AML 3111  Survey of American Literature Since 1914  3 hours
ENL 3028  Survey of British Literature Since 1914  3 hours

Choose two from:

ENL 4110  Chaucer  3 hours
ENL 4131  Shakespeare's Studies  3 hours
ENL 4120  Milton  3 hours

Required:

4000 Level Sequence Courses  9 hours
Upper-division electives in English  12 hours

2. Writing. Students desiring to specialize in the area should meet the requirements:

LIT 2020  Literary Analysis  3 hours

Any six of:

LIT 3110  Literature of Modern Man  4 hours
ENL 2011  Survey of English Literature to 1625  3 hours
ENL 2018  Survey of English Literature 1626-1798  3 hours
ENL 2025  Survey of English Literature 1798-1914  3 hours
AML 3101  Survey of American Literature 1588-1865  3 hours
AML 3107  Survey of American Literature 1865-1914  3 hours
AML 3111  Survey of American Literature Since 1914  3 hours
ENL 3028  Survey of British Literature Since 1914  3 hours
ENG 3716  Exploring Poetry  3 hours

Any two of the linguistics courses:

LIN 3010  Principles of Linguistics  3 hours
ENG 4550  Modern English Grammar  3 hours
ENG 4512  History of the English Language  4 hours
LIN 4304  Transformational Grammar  3 hours
LIN 4474  Language and Meaning  3 hours
ENG 4574  Black English  3 hours

Must include: Upper-division Literature  3-4 hours

Any four of:

CRW 2020  Principles of Creative Writing  3 hours
CRW 2321  Introduction to Verse Writing  3 hours
CRW 2221  Introduction to Fiction Writing  3 hours
CRW 3132  Creative Writing Workshop I  3 hours
CRW 3142  Creative Writing Workshop II  3 hours
CRW 3152  Creative Writing Workshop III  3 hours
ENG 3714  Structure of Verse  3 hours
CRW 3630  Writing for children  3 hours
ENC 3412  Writing Skills  4 hours
ENC 3612  Magazine Writing I  4 hours

Any three of:

CRW 4940  Writing Practicum I  3 hours
CRW 4941  Writing Practicum II  3 hours
3. Linguistics. This concentration offers intensive work in the field of linguistics, combined with a background in English literature and writing. It requires 48 hours of course work in English beyond the Freshman English courses. The specific requirements are as follows:

Linguistics (15 quarter hours)
- LIN 3010 Principles of Linguistics
- ENG 4550 Modern English Grammar
- ENG 4512 History of the English Language
- LIN 4304 Transformational Grammar
- LIN 4474 Language and Meaning

Literature (18 quarter hours to be selected from the following)
- LIT 2020 Literary Analysis
- ENL 2011 Survey of English Literature to 1625
- ENL 2018 Survey of English Literature, 1626-1798
- ENL 2025 Survey of English Literature, 1798-1914
- AML 3101 Survey of American Literature, 1588-1865
- AML 3107 Survey of American Literature, 1865-1914
- AML 3111 Survey of American Literature Since 1914
- ENL 3028 Survey of British Literature Since 1914
- ENG 3220 Continental European Fiction Since 1900
- LIT 3240 World Literature I
- LIT 3257 World Literature II

Upper-division English Electives (15 hours to be selected by the student)

Foreign Language (one of the following)
- Plan A. Two years (24 quarter hours)
- Plan B. One year (12 quarter hours) plus 12 quarter hours of English electives
- Plan C. Three years (36 quarter hours) with a reduction of 12 quarter hours in the required upper division English electives.

DEPARTMENT OF FOREIGN LANGUAGES

Chairman: A. Cervone, FA 436, Phone 275-2641
Faculty: Barsch, DiPierro, LaRocco, Micarelli, Payas

Language studies in the College of Humanities and Fine Arts provide instruction in French, German, Italian, Russian and Spanish, with majors in French and Spanish. These programs are designed to meet the needs of students who desire competency in a language and expanded understanding of a foreign culture and literature. Students enrolled in 1000, 2000 and certain 3000 level courses are required to attend the language laboratory for at least one hour a week.

A student wishing to major in a foreign language must meet all the requirements for graduation as set forth by the University, the College of Humanities and Fine Arts, and by the Department of Foreign Languages. The foreign language major must complete 44 quarter hours in the chosen language beyond the 1000 and 2000 level. Among these 44 quarter hours the student must take courses numbered 3240, 3420, 3100, 3101 and 3102 in both languages plus an additional 18 credits in his first language and an additional 9 credits in his second language.

Normal placement is as follows: Four years of one high school language would place the student in the first quarter of the third year; three years, in the second quarter.
of the second year; two years in the first quarter of the second year; one year in the second quarter of the first year.

A native speaker must substitute a literature course for the conversation course (3240). Moreover, in cases where the native speaker has received advanced education abroad, he will not be permitted to take the advanced composition course (3420) for the fulfillment of his major requirements but must substitute another literature course chosen with his advisor.

MINORS

The Department of Foreign Languages offers a minor consisting of 24 quarter hours in French, German, or Spanish.

Required courses: 24 quarter hours above the 2000 level in one language including the courses numbered 3240 and 3420.

BACHELOR OF ARTS: FRENCH OR SPANISH

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 113 and 120)

3. Required Courses for French or Spanish Major

   1100 Elementary Language & Civilization  4 hours
   1101 Elementary Language & Civilization  4 hours
   1102 Elementary Language & Civilization  4 hours
   2200 Intermediate Language & Civilization  4 hours
   2201 Intermediate Language & Civilization  4 hours
   2202 Intermediate Language & Civilization  4 hours
   3240 Conversation  4 hours
   3420 Composition  4 hours
   3100 Survey of Literature I  4 hours
   3101 Survey of Literature II  4 hours
   3102 Survey of Literature III  4 hours

4. Restricted Electives

5. Electives

   Total Quarter Hours Required  180

BACHELOR OF ARTS: FOREIGN LANGUAGE COMBINATION

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 113 and 120)

3. Required Courses for Combined Major in Foreign Languages

   3240 Conversation  4 hours
   3420 Composition  4 hours
   3100 Survey of Literature I  4 hours
   3101 Survey of Literature II  4 hours
   3102 Survey of Literature III  4 hours
4. Restricted Electives
   18 credits in first language
   9 credits in second language
5. Electives
   Total Quarter Hours Required 180

AREAS OF SPECIALIZATION
1. Russian Area Studies. Florida Technological University offers an academic program in Russian Area Studies. Five departments in the University have cooperated to provide this unique study program so that the student may more fully enjoy the varied offerings of the University. Upon successful completion of courses, the student will receive a certificate of participation.

DEPARTMENT OF HISTORY
Chairman: J. Shofner, Bldg. FA 551-B, Phone 275-2224
Faculty: Crepeau, Evans, Fetscher, Greenhaw, Kallina, Pauley, Wehr

Students majoring in history must complete a minimum of 48 hours in history courses. At least eight quarter hours must be selected from each of three different geographical areas, such as: the United States, Europe, Asia or Latin America.

History majors are encouraged but not required to develop a proficiency in a foreign language.

History majors who are interested in a pre-law program should work closely with their advisors in selecting major courses and electives which will best prepare them for law school. These students should use their electives for additional courses in history as well as English, speech and philosophy. Such a course of study will prepare them for success in law school and will concomitantly provide a broad liberal education. For further information contact Dr. E. Kallina at 275-2224.

MINOR
The Department of History offers a minor consisting of a minimum of 24 quarter hours.

Required courses: 24 quarter hours of history, twelve of which must be at the 3000-4000 level. Specific courses must be selected in conference with a departmental advisor.

BACHELOR OF ARTS: HISTORY
Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 113 and 122)
3. Required courses
   None
4. Restricted Electives
   None
5. Electives
   To be selected with approval of the student's advisor.
   Total Quarter Hours Required 180

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AREA OF SPECIALIZATION
1. Russian Area Studies. The history department participates in the Russian Area Program. For information consult with Professor Evans.

DEPARTMENT OF HUMANITIES, PHILOSOPHY AND RELIGION
Chairman: R. Flick, FA 415, Phone 275-2273
Faculty: Jones, Kassim, Levensohn, Riley, Riser

The Department offers:
1. An interdepartmental humanities major, with three choices of concentration.
2. A philosophy major, with an optional specialization in religion.
3. Minors in humanities, philosophy or religion.
4. A variety of courses in humanities, philosophy and religion for students in other areas who do not seek a major or minor.
5. A pre-law program.

The humanities major, as well as the philosophy major, provides a rich background in the liberal arts. Both are well suited for those students who see the college experience as a means toward fulfillment and preparation for living, and not merely as preparation for earning a living. Yet a liberal education, as provided by these majors, is still considered excellent preparation, by many employers, for careers in personnel management, communications, planning, administration, labor relations, public relations, writing, editing, politics, and civil service.

Both majors may also lead to careers in teaching. One who completes the humanities major and the necessary education courses may be certified to teach humanities in high school. With the addition of a Master’s Degree he may qualify to teach in one of the many community colleges. Since philosophy is taught primarily in college, the student who plans to teach it will need to obtain an advanced degree. He will therefore be well advised to include at least a year of foreign language in his program. The humanities major requires a year of foreign language.

For students who are interested in preparing for a career in law, the Department has developed a program within the philosophy major. Please inquire at the departmental office (FA 409, Phone 275-2273).

MINORS
The Department of Humanities, Philosophy and Religion offers minors consisting of 24-28 quarter hours. For specific requirements, students should see an advisor in Humanities, Philosophy, or Religion.

BACHELOR OF ARTS: HUMANITIES
Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 113 and 123)
3. Required Courses (all concentrations)
   HUM 4301 The Classical Ideal in the Arts 4 hours
   HUM 4302 The Romantic Ideal in the Arts 4 hours
   HUM 4303 The Spiritual Ideal in the Arts 4 hours

4. Restricted Electives
   (Choose one of the three specializations)

5. Electives
   May be used to obtain a second major, to complete requirements for teacher cer-
   tification in Humanities in the College of Education, or to strengthen the major with
   cognate courses.

Total Quarter Hours Required 180

AREAS OF SPECIALIZATION

1. Ideas (See advisor for specific courses.)
   a. Two courses in world or English literature 6-8 hours
   b. Two courses in Greek, Roman or European history 8 hours
   c. Two courses in history of philosophy 8 hours
   d. One course in Judaism, Christianity or world religions 4 hours
   e. Any course in literature, history, philosophy or religion 3-4 hours
   f. One course in art history or appreciation 3-4 hours
   g. One course in music appreciation 3-4 hours
   h. One course in theatre history 3-4 hours

2. THE ARTS (See advisor for specific courses)
   a. One course in world literature: 4 hours
   b. One course in history: 4 hours
   c. One course in history of philosophy: 4 hours
   d. One course in religion: 4 hours
   e. Two courses in art: 6 hours
   f. Two courses in creative writing: 6 hours
   g. Courses in music: 6 hours
   h. Two courses in theatre: 6 hours

3. WORLD CULTURES (See advisor for specific courses.)
   a. Two courses in world or European literature 8 hours
   b. Two courses in Russian or Far Eastern history: 8 hours
   c. Two courses in non-Western religion: 8 hours
   d. One course in philosophy: 4 hours
   e. Two courses in non-Western art: 6 hours
   f. One course in music appreciation: 3-4 hours
   g. One course in drama development: 4 hours

BACHELOR OF ARTS: PHILOSOPHY

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 113 and 123)

3. Required Courses
   PHI 1100 Critical Thinking 4 hours
   PHI 2130 Formal Logic 4 hours
4. Restricted Electives
   Three elective courses in philosophy or religion 12 hours

5. Electives
   To be selected with the approval of the student's advisor. May be used to obtain a second major.
   Total Quarter Hours Required 180

AREA OF SPECIALIZATION

1. Religion
   Students may meet requirements for the Bachelor of Arts in Philosophy by completing the following alternate required courses and restricted electives.

   a. Required courses
      PHI 1100 Critical Thinking 4 hours
      PHI 2010 Intro. to Philosophy 4 hours
      PHIH 3100 Ancient Philosophy 4 hours
      PHI 3600 Ethics 4 hours
      PHI 4700 Philosophy of Religion 4 hours
      REL 3203 Hebrew and Christ. Heritage 4 hours
      REL 3314 Religions of China & Japan 4 hours
      REL 3342 Hinduism 4 hours
      REL 3353 Islam 4 hours

   b. Restricted electives
      (1) Choose one
      REL 2302 World Religions 4 hours
      REL 4300 Comparative Religion
      (2) Choose two
      REL 4420 Modern Theology 8 hours
      REL 4184 Mythology
      REL 4414 The Religious Quest
      REL 4182 Mysticism

DEPARTMENT OF MUSIC

Chairman: G. Wolf, FA 105A, Phone 275-2867
Faculty: Brodie, Eubank, Hotaling, Keltner, Palmer, Stenberg, Szabo, Welker, Whisler, Wolf, Wrancher.

The Department of Music offers a Bachelor of Arts with options in Applied Music, Piano Pedagogy, Instrumental Music Education, Vocal/Choral Music Education, Piano/Vocal Music Education, and Elementary School Music Education.

SPECIAL MUSIC MAJOR ENTRANCE REQUIREMENTS

In order to be accepted as a music major, the following entrance requirements must be met:
a. Each candidate must be auditioned in order to demonstrate an advanced level of proficiency in the major area of performance as evidenced by his/her ability to perform compositions representing a variety of musical periods. Memorization is required for pianists and vocalists. Accompanists for vocalists will be furnished only upon request prior to the audition. Each candidate must bring music for the compositions he intends to perform. The college will provide large instruments such as the tuba, string bass, or timpani for these auditions. All smaller instruments must be brought to the University.

The audition will also serve as a placement examination for those candidates accepted to determine on what level they will begin studies at FTU.

b. All candidates will receive a piano and sight-singing placement examination.

c. Personal Interview.

All new students must audition on their performing medium. Music History and Music Theory Comprehensive Examinations will be given during the Junior year. At the end of the first quarter there will be an ear-training and sight-singing examination; at the end of the second quarter there will be a part-writing and visual analysis examination; at the end of the third quarter there will be a Music History examination.

K-12 Certification

The Music Education programs are approved by the Florida State Department of Education. Students who wish to be certified to teach in elementary and secondary schools should consider a major in Music Education. Courses leading to teacher certification are offered cooperatively with the College of Education. Those students who satisfactorily complete the Music Education program will be eligible for a Florida Rank III Teacher's Certificate. The certificate is valid for five years and is renewable. A reciprocal certification arrangement is in effect with approximately 30 other states, with reciprocal certification pending in other states. In addition, a Master of Education degree in Music Education is offered in cooperation with the College of Education.

The Department of Music has identified courses acceptable for completing an undergraduate minor.

POLICY REGARDING MAJOR ENSEMBLE PARTICIPATION

1. Every music or music education major carrying an academic credit load of eight (8) or more hours must participate in a credit-bearing major ensemble in his applied major area.

   Major ensembles acceptable in fulfillment of this requirement are chorus, symphony orchestra, and symphonic band. Students concentrating in piano, guitar, and organ must take University Choir as their major ensemble, the stipulation that this participation be "in his applied major area" not being applicable.

2. Music majors must earn twelve (12) quarter hours of major ensemble credit to graduate. Music education majors must similarly earn eleven (11) hours in their degree program. No more than one major ensemble may be used to satisfy this requirement in any given quarter, although a student may participate in more than one ensemble if he so desires.

3. Music education majors in wind, brass, strings, and percussion are required to participate in the University Chorus for a minimum of two (2) quarters during their degree program. The minor ensemble requirement will be reduced by two (2) quarter hours in order to accommodate this requirement. Vocal music education majors may elect to substitute two (2) quarter hours of band or orchestra for two (2) hours of the minor ensemble requirement provided they have sufficient facility on an appropriate instrument.
4. Assignment to a major ensemble will be made by the ensemble director(s).

**POLICY REGARDING MINOR ENSEMBLE PARTICIPATION**

1. Music majors must earn twelve (12) quarter hours of minor ensemble credit during at least ten (10) separate quarters to graduate. Music education majors must earn six (6) quarter hours of minor ensemble credit during at least five (5) separate quarters to graduate.

2. The following ensembles will be considered minor ensembles: Brass Ensembles, Percussion Ensembles, Piano Ensembles, String Ensembles, Vocal Ensembles, Woodwind Ensembles.

   N.B. Opera Workshop and Jazz Ensemble will not be considered minor ensembles. Other minor ensembles may be instituted at the discretion of the Ensemble Coordinator.

3. Assignment in minor ensembles will be made by the Ensemble Coordinator upon recommendation of the applied music teacher and/or the ensemble director.

**MINOR**

The Department of Music offers a minor consisting of a minimum of 34 quarter hours.

Required courses: a minimum of 12 quarter hours at the 3000-4000 level; one year of theory (12 hours), two years of lessons (12 quarter hours), two years of ensembles (6 quarter hours); MUL 3011; a satisfactory placement examination.

**BACHELOR OF ARTS: MUSIC**

**Degree Requirements**

1. University graduation requirements
   (See page 40)

2. Environmental Studies Program
   (See page 56)

3. Required Courses
   
<table>
<thead>
<tr>
<th>Course</th>
<th>Name</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MUS 1011</td>
<td>Music Forum (12 quarters)</td>
<td>0</td>
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<tr>
<td>MUS 2111</td>
<td>Music Theory</td>
<td>9</td>
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<tr>
<td>2112, 2113</td>
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<td></td>
</tr>
<tr>
<td>MVK/MVS/ MVW/MVB/ MVP</td>
<td>Principal Performance I (3 quarters)</td>
<td>6</td>
</tr>
<tr>
<td>MUS 3121, 3122, 3123</td>
<td>Music Theory</td>
<td>9</td>
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<td>MVK/MVS/ MVW/MVB/ MVP</td>
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<tr>
<td>MUN 3120, 3310, 3280</td>
<td>Major Ensemble</td>
<td>12</td>
</tr>
<tr>
<td>MUN 3460</td>
<td>Minor Ensemble</td>
<td>12</td>
</tr>
<tr>
<td>MUT 4431, 4432</td>
<td>Music Theory</td>
<td>6</td>
</tr>
<tr>
<td>MUS 4131, 4132, 4133</td>
<td>Music History</td>
<td>9</td>
</tr>
</tbody>
</table>
MVK/MVS/
MVP Principal Performance III (3 quarters) 6 hours
*MUS 4905 Directed Experience 15 hours
MVK/MVS/
MVP Principal Performance IV (3 quarters) 6 hours
PHYS 3805 Physical Basis of Music 3 hours

4. Restricted Electives
To be selected primarily from upper level courses outside the Department of Music, with the approval of the student’s advisor. 15 hours

5. Electives
Total Quarter Hours Required 180

Special Non-Course Requirements
1. Piano Proficiency Examination before admission to Principal Performance III.
3. Two faculty-approved public recitals: a junior recital of 30 minutes length, and a senior recital of 45 minutes length. Students who select the Piano Pedagogy option will perform two faculty-approved thirty-minute recitals.

*To partially fulfill the Directed Experience requirement, Piano Majors take Piano Literature (MUL 3401, 3402, 3403) for 6 hours; Voice Majors take Foreign Diction (FRE 1005, GER 1005, ITA 1005—1 hour each for a total of 3 hours) and Song Literature (MUL 3622, 3624, 3625—1 hour each for a total of 3 hours) for a combined total of 6 hours; Piano Pedagogy Majors take Piano Literature (MUL 3401, 3402, 3403) for 6 hours, Piano Pedagogy (MVP 4631, 4632) for 4 hours, and Studio Teaching for 2 hours, for a combined total of 12 hours.

BACHELOR OF ARTS: MUSIC EDUCATION
Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 113 and 125)
3. Required Courses
   MUS 1011 Music Forum (10 quarters) 0 hours
   MVS/MVW/
   MVP Secondary Performance (Brass, Woodwind, String, and Percussion Classes) 4 hours
   MUS 2111, 2112, 2113 Music Theory 9 hours
   MVK/MVS/
   MVW/MVB/
   MVP Principal Performance I (3 quarters) 6 hours
   MUS 3121, 3122, 3123 Music Theory 9 hours
   MVK/MVS/
   MVW/MVB/
   MVP Principal Performance II (3 quarters) 6 hours
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tr>
<td>MUN 3120, 3310, 3280</td>
<td>Major Ensemble</td>
<td>11 hours</td>
</tr>
<tr>
<td>MUN 3460</td>
<td>Minor Ensemble</td>
<td>6 hours</td>
</tr>
<tr>
<td>MUT 4431, 4432</td>
<td>Music Theory</td>
<td>6 hours</td>
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<td>MVK/MVS/ MVW/MVB/ MVP</td>
<td>Principal Performance III (3 quarters)</td>
<td>6 hours</td>
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<tr>
<td>MUS 4131, 4132, 4133</td>
<td>Music History</td>
<td>9 hours</td>
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<tr>
<td>EDF 3603</td>
<td>Teaching Analysis</td>
<td>4 hours</td>
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<tr>
<td>ESE 3940</td>
<td>Student Teaching</td>
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</tr>
<tr>
<td>EDE 4943</td>
<td>Student Teaching</td>
<td>9 hours</td>
</tr>
<tr>
<td>EDF 2116</td>
<td>Human Behavior or</td>
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<tr>
<td>EDF 3255</td>
<td>Classroom Management</td>
<td>4 hours</td>
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<tr>
<td>EDG 3032</td>
<td>Human Aspects of School Programs or</td>
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<tr>
<td>RED 4333</td>
<td>Reading in Content Areas</td>
<td>3 hours</td>
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<tr>
<td>LIS 4428</td>
<td>Media</td>
<td>4 hours</td>
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<tr>
<td>EDG 4938</td>
<td>Teaching Strategies</td>
<td>3 hours</td>
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<tr>
<td>MUE 4314</td>
<td>Music Education Instruction in Schools</td>
<td>2 hours</td>
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<td>MUE 4330</td>
<td>Elementary School Music Instructional Analysis</td>
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<tr>
<td>MUE 4350</td>
<td>Secondary School Music Instructional Analysis</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHYS 3805</td>
<td>Physical Basis of Music</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

**Program A — Instrumental Music Education Specialization**

- **MVV 1211 or MVV 2221**: Secondary Performance Voice (2 voice classes) 2 hours
- **MVV 1211 or MVV 2221**: Secondary Performance (individual instruments) 4 hours
- **MVK 1111**: Class Piano (3 quarters) or more advanced 3 hours
- **MUT 4321**: Seminar in Arranging & Transcription 2 hours
- **MUE 4340**: Marching Band Techniques 2 hours
- **MUG 3102**: Instrumental Conducting 2 hours
- **MVK/MVS/ MVW/MVB/ MVP**: Principal Performance IV (2 quarters) 4 hours

**Program B — Vocal/Choral Music Education Specialization**

- **MVV 1211**: Class Voice (5 quarters) 5 hours
- **MUL 3622, 3624, 3625**: Song Literature 3 hours
- **MUG 3101**: Choral Conducting 2 hours
- **MVK/MVS/ MVW/MVB/ MVP**: Principal Performance IV (2 quarters) 4 hours
- **FRE 1005, GER 1005, ITA 1005**: Diction 3 hours

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Program C—Piano/Vocal Music Education Specialization

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MVV 1211</td>
<td>Class Voice (5 quarters)</td>
<td>5 hours</td>
</tr>
<tr>
<td>MUL 3401, 3402, 3403</td>
<td>Piano Literature</td>
<td>6 hours</td>
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<tr>
<td>MUG 3101</td>
<td>Choral Conducting</td>
<td>2 hours</td>
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<tr>
<td>MVK/MVS/MVW/MVB/MVP</td>
<td>Principal Performance IV (2 quarters)</td>
<td>4 hours</td>
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Program D—Elementary School Music Education Specialization

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<th>Course</th>
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<tr>
<td>MVV 1211</td>
<td>Class Voice (5 quarters) or</td>
<td>5 hours</td>
</tr>
<tr>
<td>MVK 1111, 1121</td>
<td>Class Piano (5 quarters)</td>
<td>1 hour</td>
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<tr>
<td>MVS 1216</td>
<td>Class Guitar</td>
<td>1 hour</td>
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<tr>
<td>MVO 1214</td>
<td>Class Recorder</td>
<td>1 hour</td>
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<tr>
<td>MUL 3622, 3624, 3625</td>
<td>Song Literature</td>
<td>3 hours</td>
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<tr>
<td>MUE 3401</td>
<td>Special Topics in Elementary School Music (2 quarters)</td>
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<tr>
<td>FRE 1005, GER 1005, ITA 1005</td>
<td>Diction</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

4. Electives
   None

Total Quarter Hourse Required: 185-187

Special Non-course requirements
1. Piano Proficiency Examination before admission to Principal Performance III.
2. Music History and Music Comprehensive Examination.
3. A faculty-approved public recital of 30 minutes length. (A recital is optional for the Elementary School Music Specialization.)

DEPARTMENT OF THEATRE

Chairman: (Acting) H. Smith, FA 509B, Phone 275-2600
Faculty: Mays, Smith, Welsch

The Department of Theatre offers the student an opportunity to concentrate in the area of theatre either as a preparation for graduate or professional study or as a course of study in the liberal arts.

The major in Theatre offers four separate areas of concentration, one of which will be pursued by the student upon consultation with his advisor. There are six courses (14 hours) required of all theatre majors: THE 1020(4), THE 2071(4), THE 2725(3, 3).

MINORS

The Department of Theatre offers minors consisting of a minimum of 24-25 quarter hours.
1. Acting/Directing.
   Required courses: THE 1002; TPP 2110; THE 3251; TPP 3700; TPA 2322; TPP 3500, 3310.
2. Film.
   Required courses: THE 2056, 3251, 4057, 4038; 8 quarter hours of independent study.
3. Technical Theatre and Design.
   Required courses: THE 1002; TPA 2210, 2211, 3060, 3220; THE 3925.
4. Theatre History and Criticism.
   Required courses: THE 1002, 3112, 3113, 3114, 3312, 3313, 3314.

**BACHELOR OF ARTS: THEATRE**

**Degree Requirements**

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 113 and 130)

3. Required Courses

   **Program "A" Theatre History and Criticism**
   - THE 3251 History of the Motion Picture 4 hours
   - THE 3112, 3113, 3114 History of Theatre 9 hours
   - THE 3312, 3313, 3314 Development of Drama 12 hours
   - THE 4375 Contemporary Theatre/Drama 3 hours
   - THE 4530 Dramatic Criticism 3 hours
   - THE 4201, 4202 American Drama 8 hours

   **Program "B" Technical Theatre and Design**
   - TPA 2210 Technical Theatre Production 4 hours
   - TPA 2211 Stage Carpentry 4 hours
   - TPA 2082 Stage Properties 4 hours
   - THE 3230 Theatrical Costuming 3 hours
   - TPA 3250 Make up Techniques 4 hours
   - TPA 3060 Scene Design 4 hours
   - TPA 3220 Stage Lighting 4 hours
   - THE 3925 Theatre Practicum II 6 hours
   - THE 4170 Experimental Theatre 4 hours
   - THE 4932 Special Topics 4 hours

   **Program "C" Acting and Directing**
   - TPA 2210 Technical Theatre Production 4 hours
   - TPA 2082 Stage Properties 4 hours
   - TPP 2110 Acting I 4 hours
   - THE 3251 History of the Motion Pictures 4 hours
   - TPP 3111 Acting II 4 hours
   - TPP 3121 Improvisation/Mime 4 hours
   - THE 3230 Theatrical Costuming 3 hours
   - TPA 3250 Make Up Technique 3 hours
   - TPP 3500 Modern Stage Movement 4 hours
   - TPP 3310 Directing I 4 hours
   - TPA 3060 Scene Design I 4 hours
   - THE 4170 Experimental Theatre 4 hours
   - TPP 4111 Acting III 4 hours
   - TPP 4350 High School Play Directing 4 hours
   - THE 4600 Children's Theatre 4 hours
   - TPP 4140 Performance Styles 4 hours

   **Program "D" Film**
   - THE 3251 History of Motion Picture 4 hours
   - THE 4072 Principles of Motion Picture Art 8 hours
   - TPA 3310, 4170 Directing I, Experimental Theatre 8 hours
The curriculum for the Master of Arts in English, which is ordinarily not a thesis degree, consists of courses and seminars in British, American, and world literature; linguistics; and the teaching of literature and composition. The Master of Arts program provides advanced study for persons holding a bachelor’s degree in English or its equivalent. It also enables teachers holding a Rank III Florida certificate to acquire a Rank II certificate while enhancing their teaching ability and developing the knowledge and skills necessary for teaching English in college.

Admission Requirements
1. University Admission Requirements
   (See pages 40 and 51)

2. Program Admission Requirements:
   a. An undergraduate major in English, or its equivalent, with an average of B in all English courses. (Applicants without a major in English may remove any deficiencies without graduate credit.)
   b. Approval by the Graduate committee of the Department of English.
   c. Three reference reports.

   See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies.

Degree Requirements
1. University Graduate Policies and Procedures
   See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies.

2. Prerequisites: LIN 5137 (Linguistics) or equivalent.

3. Required Courses:
   ENG 6108 (Literary Genres), LIT 6235 (World Literature), LIT 6544 ( Movements in Literature), LIT 6932 (Problems of Linguistics), LIT 6535 (Major Author).

4. Restricted Electives:
   None


6. Examinations: A comprehensive examination is required. Demonstration of a reading knowledge of a foreign language is required.

   Total Quarter Hours 45

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COLLEGE OF
NATURAL SCIENCES

UNDERGRADUATE PROGRAMS

BIOLOGICAL SCIENCE
  BIOLOGY (BS)
  BOTANY (BS)
  LIMNOLOGY (BS)
  MICROBIOLOGY (BS)
  ZOOLOGY (BS)

CHEMISTRY (BS)
COMPUTER SCIENCE (BS)
FORENSIC SCIENCE (BS)
MATHEMATICS (BS)
MEDICAL RECORD ADMINISTRATION (BS)
MEDICAL TECHNOLOGY (BS)
PHYSICS (BS)
RADIOLOGIC SCIENCES (BS)
RESPIRATORY THERAPY (BS)
STATISTICS (BS)

GRADUATE PROGRAMS

BIOLOGICAL SCIENCE (MS)
COMPUTER SCIENCE (MS)
INDUSTRIAL CHEMISTRY (MS)
MATHEMATICAL SCIENCE (MS)

OTHER PROGRAMS

PREDENTAL
PREMEDICAL
PRENURSING
PREOPTOMETRY
PREPHARMACY
PREVETERINARY
COLLEGE OF
NATURAL SCIENCES

Dean:  B. Ostle, AD 217, Phone 275-2691
Associate Dean:  R. Laird, AD 214, Phone 275-2691

It is the purpose of the College of Natural Sciences to assist all students to develop their individual capabilities to the fullest. To this end, the College will provide a broad liberal education through the Environmental Studies Program as well as concentrated study in specialized fields.

MAJOR STUDY PROGRAMS AND GENERAL REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE

In addition to meeting all University requirements, each degree program in the College of Natural Sciences must contain:

1. ENG 310, Professional Report writing II, and
2. courses which will introduce the student to the three major scientific disciplines within the College; i.e., physical sciences, biological and health sciences, and mathematical and computer sciences.

To satisfy the latter requirement, each student must take six courses distributed among the two scientific disciplines outside that of his major with a minimum of two courses in either discipline. (Notes: (1) Each department has identified a group of approved courses from which its majors may select in order to satisfy this College requirement. These courses will be of sufficient academic rigor to acquaint the student with both the philosophy and methodology of professionals within their disciplines. (2) With proper justification a student may be permitted to utilize courses offered outside the College of Natural Sciences to satisfy this distribution requirement by obtaining the prior approval of the Dean. Such requests must carry departmental approval before submission to the college of Natural Sciences Academic Standards Committee which will then forward them, with its recommendation, to the Dean.)

All degree programs must be approved by the major department and by the Dean of the College of Natural Sciences.

At the present time, undergraduate degree programs are available in the following areas: Biological Science (with options in Biology, Botany, Limnology, Microbiology and Zoology), Chemistry, Computer Science, Forensic Science, Mathematics, Medical Record Administration, Medical Technology, Physics, Radiologic Sciences, Respiratory Therapy and Statistics. Preprofessional programs are also available to help students prepare for further study in the health and health related professions.

Preprofessional programs leading to further study in schools of dentistry, medicine, optometry, pharmacy, podiatry and veterinary medicine are administered through the Office of the Preprofessional Coordinator, located in the Dean's Office. Other preprofessional programs associated with the health related professions (i.e., the allied health sciences) are administered through the Department of Allied Health Sciences.

GRADUATE PROGRAMS

Graduate programs leading to a Master of Science degree are available in Biological Science, Computer Science, Industrial Chemistry, and Mathematical Science.

PROGRAM PLANNING

Although suggested curricula are available in most areas, each student will plan his
program in consultation with a faculty advisor appointed by the chairman of the major department or by the Dean of the College of Natural Sciences.

DEPARTMENT OF ALLIED HEALTH SCIENCES

Chairman: J. Bergner, BL 306, Phone: 275-2741
Faculty: Edwards, Geren, (Coordinator, Radiologic Sciences), Graham, Johnson, Kangelogos (Coordinator, Medical Technology), Kuyper (Coordinator, Medical Record Administration), Lytle McLean, Mendenhall, Morrison, Worrell
COURTESY APPOINTMENTS: Bradford, Calabrese, Capraun, Carleton, Carr, Getting, Gilbert, Gregg, Hall, Heinsohn, Hill, Hinkle, Holcomb, Hollon, Hughes, Jackson, Judy, Kanarek, Kerman, Kermode, Lee, Lipsit, Marvin, Maurer, Murray, Neill, Partain, Reyes, Risacher, Rogers, Rollie, E. Smith, Stoner, Strack, K. Snyder, R. Snyder, Van Hook, Walsh, Wardell, Willard

Today's health care industry can best be described as dynamic, both from efforts within itself to seek new and improved health care delivery systems and from developments without, as seen in the rapid expansion of scientific knowledge and continuing medical advances. This has led to an increasingly critical need for highly trained personnel in an ever-widening variety of professional health fields. The present potential for programs of care, treatment and prevention of diseases and disability is on a scale and of a quality never before envisioned. However, this potential can be realized with the support of skilled professional personnel in the specialized health fields.

The Department of Allied Health Sciences offers the Bachelor of Science degree in four fields: Medical Record Administration, Medical Technology, Radiologic Sciences, and Respiratory Therapy. Presently, FTU has planning authorization for the Bachelor of Science in Nursing Degree. Implementation is anticipated in 1979-1980. In addition, a series of courses is offered under the AHS designation.

The Department of Allied Health Sciences offers the educational opportunities and clinical experience to prepare the health professional. The student must be prepared and willing to accept a multifaceted role as a member of the health care team—as administrator, planner, consultant, educator, researcher, and practitioner. Professional competence is built upon a solid grounding in the humanities, social sciences and natural sciences. The programs are designed to include not only the development of skills to assure excellence in quality of health care but such experiences and factual knowledge as will provide the basis for continuing intellectual and professional growth. Graduates are prepared for positions in hospitals, medical and hospital laboratories, outpatient facilities, research centers, clinics and in local, state and national health agencies and departments.

The first two years of study in the allied health sciences constitute a specified preprofessional program of basic education similar, but not identical, for all programs. Admission to study in this department does not constitute admission to the professional phase of these programs. Application to the Upper Division must be made separately from the University application. Admission is dependent upon the applicant's academic performance prior to upper division application and the availability of openings in the clinical facility. Separate application to the upper division must be made at least six months, but no more than one year, prior to the time the student is ready for admission. Further, admission to the upper division in medical technology does not constitute admission to the professional phase of that program: application must also be made during the junior year to an approved affiliated hospital for the required senior year clinical experience.

Application deadline is April 1. The student will be eligible to make application for admission if he anticipates completing 90 quarter hours of college work by the Sep-
tember following his application. A minimum GPA of 2.5 is normally required to be considered. Each applicant will be notified in writing concerning final action on his application.

Following admission into the Upper Division, a student must make a grade of "C" or higher in all required courses including restricted electives (sections 3 and 4 under Degree Requirements on following pages).

Required courses leading to the Bachelor of Science degree in Medical Record Administration, Medical Technology, Radiologic Sciences and Respiratory Therapy are identified in the course listings which follow. The program in Medical Record Administration is approved by a committee of the American Medical Association in cooperation with the Education and Registration Committee of the American Medical Record Association. The degree in Medical Technology will be awarded upon completion of the University’s didactic program and an affiliated clinical program approved by the National Accrediting Agency for Clinical Laboratory Sciences. The program in Radiologic Sciences is approved by the Committee on Medical Education of the American Medical Association in collaboration with the American Society of Radiologic Technologists. The program in Respiratory Therapy is approved by the American Medical Association in collaboration with the Joint Review Committee for Respiratory Therapy Education.

Preprofessional preparation is also available to students in other health related areas such as nursing, occupational therapy, physical therapy, etc. However, the requirements of professional schools offering degrees and/or clinical training in any of these fields, although similar, vary significantly. Students desiring to take preprofessional work in any of these areas should consult with the Chairman of the Department of Allied Health Sciences prior to beginning their programs.

**BACHELOR OF SCIENCE: MEDICAL RECORD ADMINISTRATION**

**Degree Requirements**

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 134 and 135)

3. Required Courses

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<tr>
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<td>HSC 3161</td>
<td>Health Services Organization</td>
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<tr>
<td>HSC 3152</td>
<td>Health Law</td>
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<tr>
<td>HSC 4302</td>
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<td>HSC 4162</td>
<td>Supervisory Management for Health Services Agencies</td>
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<td>HSC 4511, 4512</td>
<td>Fundamentals of Medicine I &amp; II</td>
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<td>HSC 3501</td>
<td>Interpretation of Clinical Tests</td>
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<td>HSC 4912</td>
<td>Research Methods</td>
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<td>BSC 1010C</td>
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<td>COM 3110</td>
<td>Business and Professional Communication</td>
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<td>CAP 3001</td>
<td>Computer Fundamentals for Business Application I</td>
<td>3</td>
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<tr>
<td>ENC 3355</td>
<td>Professional Report Writing II</td>
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<tr>
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<td>MAN 3006</td>
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</table>
MAN 3151 Human Behavior and Interpersonal Relations 3 hours
MAN 3504 Personnel Management 4 hours
MAN 4722 Decision Systems Analysis 4 hours
MRE 3000 Medical Record Administration 3 hours
MRE 3110 Evaluation of Patient Care 5 hours
MRE 3202 Coding Procedures 5 hours
MRE 3210 Health Information Systems 3 hours
MRE 3800, 3810 Directed Experience I & II 2 hours
MRE 4400 Health Care Records 5 hours
MRE 4420 Health Legislation 3 hours
MRE 4312 Analysis of Medical Record Department Operations 3 hours
MRE 4410 Performance Evaluation Procedures 3 hours
MRE 4831, 4830, 4831 Directed Experience III & IV 4 hours
MRE 4835 Management Affiliation 4 hours
MRE 4304 Medical Record Department Management 3 hours

Physical Sciences: To be selected from courses in chemistry and/or physics with the approval of the faculty advisor.

STA 3023 Fundamentals of Probability and Statistics 4 hours
ZOO 3733C Human Anatomy 5 hours
PCB 3703C Human Physiology 5 hours

4. Restricted Electives: To be selected in consultation with faculty advisor 6 hours

5. Electives 9 hours

Total Quarter Hours Required 187

BACHELOR OF SCIENCE: MEDICAL TECHNOLOGY

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 134 and 135)

3. Required Courses
   HSC 3501 Interpretation of Clinical Tests 3 hours
   BSC 1010C Basic Biology 5 hours
   CHM 2045, 2046, 2047 Chemistry Fundamentals I, II and III 10 hours
   CHM 2046L Chemistry Fundamentals Laboratory 1 hour
   CHM 3210, 3211, 3212 Organic Chemistry I, II and III 10 hours
   BCH 3313 Clinical Biochemistry 4 hours
   CHM 2205L Organic Biochemistry Laboratory 1 hour
   CAP 3001 Computer Fundamentals for Business Applications I 3 hours
   ENC 3355 Professional Report Writing II 3 hours
   MAC 1132 College Algebra and Trigonometry 5 hours
   MLS 3206 Techniques in Clinical Microscopy 3 hours
   MLS 3265L Techniques in Clinical Chemistry 4 hours
   MLS 3305 Hematology 4 hours
   MLS 3549 Immunohematology and Coagulation 4 hours

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<td>MLS 4405</td>
<td>Clinical Pathogenic Microbiology</td>
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<td>MLS 4625C, 4630C</td>
<td>Advanced Clinical Chemistry I and II</td>
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<td>MLS 4550</td>
<td>Clinical Immunohematology</td>
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<tr>
<td>MLS 4320C</td>
<td>Advanced Hematology and Coagulation</td>
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<tr>
<td>MLS 4420C</td>
<td>Clinical Mycology</td>
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<td>MLS 4431C</td>
<td>Clinical Parasitology</td>
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<td>Clinical Serology</td>
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<td>MAN 3006</td>
<td>Management</td>
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<td>General Microbiology</td>
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<td>Biology of Microorganisms</td>
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<tr>
<td>PCB 3233</td>
<td>Immunology</td>
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<td>STA 3023</td>
<td>Fundamentals of Probability and Statistics</td>
<td>4</td>
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<td>PCB 3703C</td>
<td>Human Physiology</td>
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4. Restricted Electives

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<tr>
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<tr>
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<tr>
<td>HSC 4162</td>
<td>Supervisory Management for Health Services Agencies</td>
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</table>

5. Electives

Total Quarter Hours Required 187

**BACHELOR OF SCIENCE: RADIOLOGIC SCIENCES**

**Degree Requirements**

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 134 and 135)

3. Required Courses

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<tr>
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<td>BSC 1030C</td>
<td>Basic Biology</td>
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<td>CHM 1034</td>
<td>General Chemistry (Fundamentals)</td>
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<td>CHM 2046L</td>
<td>Chemistry Fundamentals Laboratory</td>
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<td>CAP 3001</td>
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<td>Health Information Computer Systems</td>
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<td>ENC 3355</td>
<td>Professional Report Writing II</td>
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<td>College Algebra and Trigonometry</td>
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<td>College Physics I and II</td>
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<td>PHY 3752C</td>
<td>Physics of Scientific Instruments</td>
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<td>RTE 2002</td>
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<td>RTE 3806</td>
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<td>Radiographic Procedures I</td>
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<td>RTE 3549</td>
<td>Radiographic Procedures II</td>
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<td>RTE 3566</td>
<td>Special Radiographic Procedures</td>
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<td>RTE 3412C</td>
<td>Principles of Radiographic Exposure I</td>
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<td>RTE 3457C</td>
<td>Principles of Radiographic Exposure II</td>
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<td>RTE 3156</td>
<td>Pathophysiology</td>
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<tr>
<td>RTE 3684C</td>
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<td>RTE 3387</td>
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<td>RTE 4876</td>
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<td>RTE 4843</td>
<td>Clinical Education VI</td>
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<td>Clinical Education VII</td>
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<td>Radiation Instrumentation and Equipment</td>
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<td>ZOO 3735C</td>
<td>Human Anatomy</td>
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<tr>
<td>PCB 3703C</td>
<td>Human Physiology</td>
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4. Restricted Electives 26-27 hours

**Option I**

**Group A (A minimum of 3 hours)**
- HSC 3328 U.S. Health Care Systems 3 hours
- or
- HSC 3161 Health Services Organization 3 hours

**Group B (A minimum of 6 hours)**
- HSC 4162 Supervisory Management for Health Services Agencies 3 hours
- MAN 3504 Business Operations Management 3 hours
- MAN 3301 Personnel Management 4 hours

**Group C (A minimum of 5 hours)**
- ACC 2304, 2324 Financial Accounting I, II 6 hours
- or
- ACC 3003 Financial Accounting 5 hours

**Group D (All courses)**
- RTE 4207 Quantitative Methods of Radiology Management 3 hours
- RTE 4209 Radiological Administrative Practice 4 hours
- RTE 4209L Directed Clinical Study in Management 2 hours
- MAN 3010 Management and Organizational Behavior 3 hours

**Option II**

**Group A (A minimum of 3 hours)**
- HSC 3328 U.S. Health Care Systems 3 hours
- or
- HSC 3161 Health Services Organization 3 hours

**Group B (All courses)**
- EDP 3004 Educational Psychology 3 hours
- EVT 4066* Philosophy and Principles of Technical Education 4 hours
- EVT 4380* Methods of Teaching Technical/Vocational Subjects 5 hours
- RTE 4253 Curriculum Planning in Radiologic Technology 3 hours
### Required Courses

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<tr>
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<td>HSC 4162</td>
<td>Supervisory Management for Health Service Agencies</td>
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<td>CHM 2200</td>
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<td>RET 3031</td>
<td>Introduction to Clinical Practice</td>
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<td>RET 3264</td>
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<td>RET 3442</td>
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<td>APB 3263</td>
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RET 4534  Pulmonary Rehabilitation  2 hours
RET 4714  Respiratory Pediatrics  3 hours
APB 4610,  4650  Medical Pharmacology I and II  6 hours
RET 4935  Medicine  3 hours
RET 4934  Selected Topics in Respiratory Therapy  1 hours
RET 4414  Pulmonary Function Studies  3 hours
RET 4415L  Pulmonary Function Laboratory  1 hours
STA 3023  Fundamentals of Probability and Statistics  4 hours
ZOO 3733C  Human Anatomy  5 hours
PCB 3703C  Human Physiology  5 hours

4. Restricted Electives  7 hours
To be selected from courses listed below and/or other courses as approved by faculty advisor:

HSC 3501  Interpretation of Clinical Tests  3 hours
RET 4264  Cardiopulmonary Therapy  3 hours
RET 4265L  Cardiopulmonary Therapy Laboratory  1 hours
RET 4483  Physical Examination  2 hours
RET 4616  Cardiopulmonary Services  3 hours

5. Electives  7 hours

Total Quarter Hours Required  187

DEPARTMENT OF BIOLOGICAL SCIENCES

Chairman: D. Vickers, BL 211, Phone 275-2141
Faculty: Charba, Ehrhart, Ellis, Gennaro, Koevenig, Kuhn, Laird, Miller, Osborne, Snelson, Stout, Sweeney, Sweet, Taylor, Washington, White, Whittier, Wodzinski

The Department of Biological Sciences offers a Bachelor of Science in Biological Science with options in biology, botany, limnology, microbiology, and zoology, as well as the Master of Science in Biological Science.

In an age when new discoveries are reported daily on both celestial and molecular levels, the study of living organisms has gained new importance among the sciences. Students in the life sciences find themselves increasingly in demand in teaching and many phases of research. The program in biological science allows for the selection of an option in biology for those students seeking a varied background; or botany, the study of plants; or limnology, the study of the environment of inland waters; or microbiology, the study of bacteria and viruses; or zoology, the study of animals. Through the judicious selection of electives in consultation with a faculty advisor, a subspecialty, such as physiology, may be emphasized in one or more of the options outlined below.

BACHELOR OF SCIENCE: BIOLOGICAL SCIENCE

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 134 and 141)

3. Required Courses

   BSC 1010C  Basic Biology  5 hours

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4. Restricted Electives
(See specialization requirements listed below.)

MATH
A minimum of 12 quarter hours in MATH selected in consultation with the student’s advisor or the successful completion of a course in college level calculus. Courses of a difficulty level less than college algebra (MAC 1104) may not be used to satisfy this requirement. Students may not claim credit for both MAC 1132 and (MAC 1104 and/or 1114).

5. Electives
Number of hours varies with the specialization.

Total Quarter Hours Required 187

AREAS OF SPECIALIZATION
(Students desiring to specialize in the areas identified below shall include the following courses in completing degree requirements.)

1. Biology
   Restricted Electives Biology, Botany, Chemistry, Microbiology, or Zoology. To be selected with student's advisor from courses numbered 3000 or above. 36 hours

2. Botany
   PCB 4443C Community Ecology 4 hours
   BOT 3303C Plant Kingdom 5 hours
   BOT 3223C Plant Anatomy 4 hours
   BOT 3713C Plant Taxonomy 5 hours
   BOT 4503C Plant Physiology 4 hours
   Restricted Electives Biology, Botany, Chemistry, Microbiology, or Zoology. To be selected with student's advisor from courses numbered 3000 or above; including at least two courses in Botany. 14 hours

3. Limnology
   PCB 4304C Limnology 5 hours
   PCB 4303C Freshwater Systems 5 hours
   BOT 4403C Freshwater Algae 4 hours
   COP 1110 Computer Programming 3 hours
4. Microbiology

CHM 3121C, 3122C
BCH 4053, 4054
MCB 3030C
MCB 3203C
PCB 3233
APB 3535C
MCB 4404C
MCB 4164C
or MCB 4114C
APB 4763C
or MCB 4603C

5. Zoology

PCB 4647
ZOO 3713C, 3714C
ZOO 3303C
PCB 4723C
ZOO 4203C
ZOO

Invertebrate Zoology
Ichthyology
Restricted Electives
Biology, Botany, Chemistry, Computer Science, Microbiology, Physics, Statistics or Zoology courses numbered 3000 or above approved by the student’s advisor

12 hours

ZOO 4203C
ZOO 4453C

DEPARTMENT OF CHEMISTRY
Chairman: G. Baker, SC 117, Phone 275-2246
Faculty: Clausen, Cornish, Cunningham, Hertel, Idoux, Juge, Knudson, Kujawa (Geology), Madsen, Mattson, McGee (Forensic Science)

The Department of Chemistry offers a Bachelor of Science in Chemistry, Bachelor of Science in Forensic Science, and the Master of Science in Industrial Chemistry.

Completion of the undergraduate program in chemistry, which is accredited by the American Chemical society, provides access to a number of career opportunities in industry, government service, or education. Positions may entail basic or applied research, product development or control, sales, management or teaching. The program may lead to further study at the graduate level in analytical, biological, inorganic, organic, physical, or industrial chemistry or in related scientific areas. With appropriate choice of electives it also constitutes excellent preparation for the professional schools of dentistry, medicine, pharmacy, podiatry, or veterinary medicine.

BACHELOR OF SCIENCE: CHEMISTRY

Degree Requirements

1. University graduation requirements

(See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 134 and 143)

3. Required Courses
   CHM 2045, 2046, 2047  Chemistry Fundamentals I, II and III  10 hours
   CHM 2046L  Chemistry Fundamentals Laboratory  1 hour
   CHM 2120C  Analytical Fundamentals  2 hours
   CHM 3210, 3211, 3212  Organic Chemistry I, II and III  10 hours
   CHM 3211L, 3212L  Organic Laboratory Techniques I and II  4 hours
   CHM 3121C, 3122C  Analytical Chemistry I and II  6 hours
   CHM 3410, 3411, 3412  Physical Chemistry I, II and III  11 hours
   CHM 3411L, 3412L  Physical Chemistry Laboratory I and II  4 hours
   CHM 4610  Inorganic Chemistry  4 hours
   CHM 4130C  Advanced Analytical Laboratory Technique  5 hours
   CHM 4810  Undergraduate Research  6 hours
   ENC 3355  Professional Report Writing II  3 hours
   MAC 2154  Analytic Geometry  3 hours
   MAC 3311, 3312, 3313  Calculus I, II and III  12 hours
   MAC 3314  Intermediate Calculus  4 hours
   PHY 2040, 2041, 2042  General Physics I, II, III  12 hours
   PHY 2041L, 2042L  General Physics Laboratory I and II  2 hours
   PHY 3752C  Physics of Scientific Instruments  4 hours
   STA 3023  Fundamentals of Probability and Statistics  4 hours

4. Restricted Electives
   a. Biological Sciences  12 hours
   b. COP 1110  Computer Programming
   or
      COP 3215  Programming and Numerical Methods  3 hours
   c. Any three
      CHM 4220  Advanced Organic Chemistry I  3 hours
      CHM 4221  Advanced Organic Chemistry II  3 hours
      BCH 4053  Biochemistry I  3 hours
      BCH 4054  Biochemistry II  3 hours
      CHM 4160  Analytical Methods Development  3 hours
      CHM 4580  Advanced Physical Chemistry  3 hours
      CHM 4110C  Nuclear and Radiochemistry  3 hours
      CHM 4200  Concepts in Industrial Chemistry  3 hours

5. Electives
   Two years of German is recommended for those students intending to pursue graduate studies.
   Total Quarter Hours Required  189

FORENSIC SCIENCE PROGRAM

Forensic science is the profession which serves the scientific needs of the justice
The program at FTU has been designed to provide the student with an educational background in either of two subspecialties: Criminalistics or Civilistics.

The principal job of the forensic scientist is to scientifically examine physical evidence gathered at the scene of a suspect criminal action or in connection with a civil action involving two or more parties. The criminalist may work on physical evidence such as blood, hairs, fibers, or pharmaceutical and clandestine drug preparations. The civilist may work on suspect air and water pollution samples, patent medicine formulations, or faulty equipment suspect of being in violation of consumer protection standards. Upon completion of an investigation the forensic scientist presents his findings in court. The goal of the Forensic Science program is to prepare students for this demanding profession.

**BACHELOR OF SCIENCE: FORENSIC SCIENCE**

**Degree Requirements**

1. University graduation requirements  
   (See pages 40 and 56)

2. Special college and/or department requirements  
   (See pages 134 and 143)

3. Required Courses
   - BSC 1010C Basic Biology 5 hours
   - BOT 1010C General Botany 4 hours
   - CHM 2045, 2046, 2047 Chemistry Fundamentals I, II and III 10 hours
   - CHM 2046L Chemistry Fundamentals Laboratory 1 hour
   - CHM 2120C Analytical Fundamentals 2 hours
   - CHM 3210, 3211, 3212 Organic Chemistry I, II and III 10 hours
   - CHM 3211L Organic Laboratory Techniques I 2 hours
   - CHM 3121C, 3122C Analytical Chemistry I and II 6 hours
   - COP 1110 Computer Programming 3 hours
   - ENC 3355 Professional Report Writing II 3 hours
   - CHS 3511 Criminalistics I 4 hours
   - CHS 3531 Forensic Analysis Techniques 4 hours
   - CHS 4591 Forensic Science Internship 8 hours
   - MAC 3253, 3254 Applied Calculus I, II 8 hours
   - MCB 2013C General Microbiology 4 hours
   - PHY 2050C, 2051C College Physics I and II 8 hours
   - PHY 3752C Physics of Scientific Instruments 4 hours
   - STA 3023 Fundamentals of Probability & Statistics 4 hours

4. Restricted Electives
   The intent of the restricted electives is to provide the major with an opportunity to select in consultation with his/her advisor, a minimum of 36 hours (criminalistics) or 37 hours (civilistics) of coursework which will complement the student's specialized program of study in the major field. Normally, these courses will be selected from upper division courses in science, forensic science, criminal justice, or allied legal services. Of the 36 or 37 hours, not more than 12 hours may be selected from the criminal justice or allied legal services areas. Exceptions to these stipulations must be approved by the student's advisor.
Group A (A minimum of 4 hours—one course)
CCJ 3260 Criminal Law in Action 4 hours
LEA 3601 Criminal Law and the Paraprofessional 4 hours

Group B (A minimum of 4 hours—one course)
CCJ 3020 Administration of Justice 4 hours
CCJ 3451 Justice of Manpower for Science and Technology 4 hours
CCJ 4630 Comparative Justice Systems 4 hours
LEA 3001 Law and the Paraprofessional 4 hours
LEA 3013 Legal Investigation 4 hours

Group C (4 hours)
for Criminalistics Option:
CHS 3512 Criminalistics II 4 hours
for Civilistics Option:
CHS 3521 Civilistics 4 hours

Group D (A minimum of 24 [Criminalistics] or 25 [Civilistics] hours)
Approved upper division courses in science, forensic science, criminal justice or allied legal services. Of these, no more than 4 hours may come from the combined areas of criminal justice and allied legal services.

5. Electives 7-8 hours
Total Quarter Hours Required 180

DEPARTMENT OF COMPUTER SCIENCE

Chairman: T. Frederick, FA 461-B, Phone 275-2341
Faculty: Cottrell, Driscoll, Dutton, Gerber, Lang, Lore, Ma, Rhein, Workman

The Department of Computer Science offers courses and programs leading to a Bachelor of Science and Master of Science (See pages for M.S. program.) in Computer Science. In addition, the department offers a minor in computer science for students majoring in the College of Business Administration.

Computer science strives to meet the computer personnel needs of the scientific, business and industrial community by producing graduates with a broad base of formal courses as well as a specialization in selected areas. In addition, the department conducts research in programming systems/languages, information systems, computer architecture and computational methods.

Departmental computing facilities include three computer laboratories all designed for "hands on" use by students. There is a ZILOG Z-80 Developmental System located in the Microcomputer Lab and a VARIAN-73 microprogrammable minicomputer in the Minicomputer Lab. A DATA-100/78 remote job entry station connected to an IBM 370/165, as well as terminals linked to both the IBM 370 and a HARRIS Slash 4, are available in the Large Scale Systems Lab.

In addition to the degree requirements for a B.S. in Computer Science listed below, the following standards are required by the department for graduation.
1. A minimum GPA of 2.00 in all courses used to satisfy the requirements for the major in Computer Science.
2. A minimum GPA of 2.00 in computer science courses used to satisfy the requirements for the major in Computer Science.
3. The above requirements apply not only to the overall program, but also to the courses taken at FTU.
MINOR

The Department of Computer Science offers a minor in Computer Science for Business majors consisting of a minimum of 24 quarter hours.

Required courses (18 hours): CAP 3001, 3002, 3006, 3007, COP 3120; COP 3121 or CIS 4112

Restricted electives (6 hours minimum): A minimum of six additional credit hours must be selected from the following courses with the restriction that no more than one course in Group II may be used:

Group I—COP 1110, 2510, 2511, 3515, 3121; CNM 4020; CIS 4112; MAS 3113; MAC 3233, 3311, 3312, 3313, 3314; STA 4163, 4164

Group II—MAN 4510, FIN 3453, MAR 3603, ECO 4412, ACC 4421

BACHELOR OF SCIENCE: COMPUTER SCIENCE

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements

3. Required Courses: Courses used to satisfy the requirements for the major can be counted only once in the major.

   COP 2510,programming I, II 6 hours
   2511
   COP 3515,structured Programming 3 hours
   COP 3402,assembly Language Programming 4 hours
   CDA 3151,minicomputer Programming Laboratory 4 hours
   COP 4530,Data Structures 4 hours
   MAC 3311,
   3312, 3313,Calculus I, II, III 12 hours
   PHY 2040,
   2041,General Physics I, II 8 hours
   PHY 3752C,Physics of Scientific Instruments 4 hours
   EEL 3341C,Introduction to Digital Circuits 4 hours
   STA 3023,Fundamentals of Probability and Statistics 4 hours

4. Restricted Electives

   STA 4163,Statistical Methods I 4 hours
   or
   STA 4321,Mathematical Statistics I

   and a minimum of 42 quarter hours of courses selected from one of the four areas of specialization.

5. Electives

   The number of hours varies with the specialization.

   Total Quarter Hours Required 180 hours

AREAS OF SPECIALIZATION

1. General Computer Science. Students desiring to specialize in the area must complete a minimum of 42 hours as follows:

   Group A (All courses listed.)
   CDA 4102,Introduction to Computer Architecture 4 hours
   COP 4620,Programming Systems 4 hours
COT 4001  Discrete Computational Structures  4 hours
CNM 4110  Numerical Calculus  4 hours
MAC 3314  Intermediate Calculus  4 hours

Group B  (A minimum of 16 hours.)
COP 4550  Programming Languages I  4 hours
COP 5554  Programming Languages II  4 hours
CAP 5722  Computer Graphics Systems I  3 hours
COP 3120,  3121  COBOL I, II  3-6 hours
MAS 3113, or  MATrices  4-8 hours
MAS 3103,  3104  Linear Algebra I, II  4 hours
MAP 3305, or  Differential Equations  4 hours
MAP 4302  Ordinary Differential Equations I  4 hours
STA 4321,  4322  Mathematical Statistics I, II  8 hours
STA 4163,  4164  Statistical Methods I, II  8 hours

Group C
Courses taught by the Department of Computer Science numbered 4000 or higher.

2. Programming and Systems. Students desiring to specialize in the area must complete a minimum of 42 hours, as follows:

Group A  (All courses listed.)
CDA 4102  Introduction to Computer Architecture  4 hours
COP 4550  Programming Languages I  4 hours
COP 4620  Programming Systems  4 hours
STA 4163,  4164  Statistical Methods I and II  8 hours

Group B  (A minimum of 17 hours)
CDA 4161  Programming for Large Scale Digital Systems  4 hours
COP 5554  Programming Languages II  4 hours
CAP 5722  Computer Graphics Systems I  3 hours
COP 3120,  3121  COBOL I, II  3-6 hours
STA 4102  Computer Processing of Statistical Data  4 hours
COT 4001  Discrete Computational Structures  4 hours
CNM 4110  Numerical Calculus  4 hours
MAS 3113 or  MATrices  4-8 hours
MAS 3103,  3104  Linear Algebra I, II  4-8 hours
MAC 3314  Intermediate Calculus  4 hours
MAP 3305 or  Differential Equations  4 hours
MAP 4302  Ordinary Differential Equations I  4 hours

Group C
Courses taught by the Department of Computer Science numbered 4000 or higher.

3. Scientific Applications Programming. Students desiring to specialize in the area must complete a minimum of 42 hours, as follows:

Group A  (All courses listed.)
COT 4001  Discrete Computational Structures  4 hours
CNM 4110  Numerical Calculus  4 hours
MAS 3113 or MAS 3103, 3104
MAC 3314
MAP 3305 or MAP 4302

Matrices
Linear Algebra I, II
Intermediate Calculus
Differential Equations
Ordinary Differential Equations I

Group B (A minimum of 14 hours.)
CDA 4102
COP 4550
COP 4620
CNM 5142
COP 5554
CAP 5722
STA 4321, 4322
STA 4163, 4164

Introduction to Computer Architecture
Programming Languages I
Programming Systems
Computational Methods/Linear Systems
Programming Languages II
Computer Graphics Systems I
Mathematical Statistics I, II
Statistical Methods I, II

8 hours
8 hours

Group C
Courses taught by the Department of Computer Science numbered 4000 or higher.

4. Business Applications Programming. Students desiring to specialize in the area must complete a minimum of 42 hours, as follows:

Group A (All courses listed.)
COP 3120, 3121
CIS 4323
CIS 4112
CIS 4234

COBOL I, II
Data Processing Systems Analysis and Design
Database Processing
Data Processing Systems Implementation

6 hours
3 hours
3 hours
3 hours

Group B (A minimum of 21 hours with at least 3 courses selected from [1] and at least 2 courses from [2].)

[1]
CDA 4102
COP 4550
COP 4620
COP 5554
STA 4102
MAS 3113 or MAS 3103, 3104
STA 3321, 3322
STA 4163, 4164

Introduction to Computer Architecture
Programming Languages I
Programming Systems
Programming Languages II
Computer Processing Statistical Data
Matrices
Linear Algebra I, II
Mathematical Statistics I, II
Statistical Methods I, II

4 hours
4 hours
4 hours
4 hours
4 hours
4-8 hours
8 hours
8 hours

[2]
ACC 3003
ACC 3301
FIN 3403
MAN 3010
MAN 3151
MAR 3023

Financial Accounting
Management Accounting
Finance
Management and Organization Behavior
Human Behavior and Interpersonal Relationships
Marketing

5 hours
3 hours
5 hours
3 hours
3 hours
5 hours

Group C
Courses taught by the Department of Computer Science numbered 4000 or higher.
The Department of Mathematics and Statistics offers courses and programs which lead to a Bachelor of Science in Mathematics, a Bachelor of Science in Statistics, a minor in statistics, and a Master of Science in Mathematical Science. (See pages ___ for a description of the M.S. in Mathematical Science.)

The programs in mathematics and statistics are designed to serve (1) students who wish to pursue careers in mathematics or statistics after having completed a baccalaureate degree; (2) students who wish to continue their education in graduate and professional schools; and (3) students who need to use mathematics or statistics as tools in their specialty areas.

In order to serve such a wide variety of students, the courses and programs in the Department of Mathematics and Statistics have developed along several lines. There are the usual service courses in precalculus, calculus and elementary statistics along with strong programs in the upper division in the traditional areas of algebra and analysis, applied mathematics, and statistical methods.

A limited number of student assistantships are available for qualified graduate and undergraduate students.

MINOR

The Department of Mathematics and Statistics offers a minor in Statistics consisting of a minimum of 24 quarter hours.

Required courses: STA 3023 or STA 3032 or equivalent; STA 4163 and STA 4164; STA 4202 or STA 4222; nine or more hours from STA courses numbered 3000 or higher and not including STA 3023, STA 3032, or equivalent.

BACHELOR OF SCIENCE: MATHEMATICS

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 134 and 150)

3. Required Courses
   The courses listed, or departmentally approved equivalents, are required for the mathematics degree.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHF 2300</td>
<td>Logic and Proof in Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>MAC 2154</td>
<td>Analytic Geometry</td>
<td>3</td>
</tr>
<tr>
<td>MAC 3311</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MAC 3312</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MAC 3313</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MAC 3314</td>
<td>Intermediate Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MAS 3103</td>
<td>Linear Algebra I</td>
<td>4</td>
</tr>
<tr>
<td>MAS 3104</td>
<td>Linear Algebra II</td>
<td>4</td>
</tr>
<tr>
<td>MAA 4226</td>
<td>Introduction to Analysis I</td>
<td>3</td>
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</tbody>
</table>
MAA 4227  Introduction to Analysis II  3 hours
MAA 4228  Introduction to Analysis III  3 hours
MAP 4302  Ordinary Differential Equations I  4 hours
MAS 4301  Algebraic Structures I  4 hours
or MTG 4302  Topology I
STA 3023  Fundamentals of Probability and Statistics  4 hours
STA 4321  Statistical Theory I  4 hours
STA 4322  Statistical Theory II  4 hours
COP 2510  Programming I  3 hours
COP 2511  Programming II  3 hours
PHY 2040  General Physics I  4 hours
PHY 2041  General Physics II  4 hours
PHY 2042  General Physics III  4 hours
PHY 2041L  General Physics Laboratory I  1 hour
PHY 2042L  General Physics Laboratory II  1 hour

4. Restricted Electives
A minimum of 12 hours from the following list:
COT 4001  Discrete Computational Structures  4 hours
CMN 4110  Numerical Calculus  4 hours
CMN 5142  Computational Methods/Linear Systems  4 hours
ECM 4134  Optimum Seeking Methods  3 hours
EGN 4634  Operations Research  3 hours
EGN 4714  Linear Control Systems  4 hours
and any upper division or graduate mathematics or statistics course taught by the Department of Mathematics and Statistics (except MAC 3253, MAC 3254, MAC 3233, MAP 3305, MAE 3812, MAE 4839, MAE 4871).

5. Electives
The number of hours varies with the restricted electives chosen and the courses chosen for satisfying university and college requirements. A plan for use of electives must be approved by a departmental committee at least two quarters prior to graduation.

Total Quarter Hours Required  180

BACHELOR OF SCIENCE: STATISTICS

Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 134 and 150)
3. Required Courses
   The courses listed, or departmentally approved equivalents, are required for the statistics degree.

   STA 3023  Fundamentals of Probability and Statistics  4 hours
   STA 3664  Statistical Quality Control  3 hours
   STA 4163  Statistical Methods I  4 hours
   STA 4164  Statistical Methods II  4 hours
   STA 4202  Experimental Design  3 hours
   STA 4203  Regression Analysis  4 hours
STA 4222 Sample Survey Methods 3 hours
STA 4321 Statistical Theory I 4 hours
STA 4322 Statistical Theory II 4 hours
STA 4102 Computer Processing of Statistical Data 4 hours
MHF 2300 Logic and Proof in Mathematics 4 hours
MAC 2154 Analytic Geometry 3 hours
MAC 3311 Calculus I 4 hours
MAC 3312 Calculus II 4 hours
MAC 3313 Calculus III 4 hours
MAC 3314 Intermediate Calculus 4 hours
MAS 3113 Matrices 4 hours
COP 2510 Programming I 3 hours
COP 2511 Programming II 3 hours
CNM 4110 Numerical Calculus 4 hours

4. Restricted Electives
A minimum of 16 hours from the following list:
COT 4001 Discrete Computational Structures 4 hours
CNM 5142 Computational Methods/Linear Systems 4 hours
ECM 4134 Optimum Seeking Methods 3 hours
EGN 4634 Operations Research 3 hours
EGN 4714 Linear Control Systems 4 hours

and any upper division or graduate mathematics or statistics course taught by the
Department of Mathematics and Statistics (except MAC 3253, MAC 3254, MAC
3233, MAP, 3305, MAE 3812, MAE 4839, MAE 4871).

5. Electives
The number of hours varies with the restricted electives chosen and the courses
chosen for satisfying university and college requirements. A plan for use of elec­
tives must be approved by a departmental committee at least two quarters prior to
graduation.

Total Quarter Hours Required 180

DEPARTMENT OF PHYSICS

Chairman: J. Noon, EN 312, Phone 275-2325
Faculty: Bolemon, Bolte, Brennan, Henderson, Katzin, Oelfke

The Department of Physics offers the Bachelor of Science degree in Physics.
Physics is a basic science fundamental to many different fields of endeavor. Physics
majors who prepare for interdisciplinary type careers use electives to study other
areas of science in depth. Programs of electives related to possible future careers
should be planned before the beginning of the sophomore year. Transfer students,
however, will be advised on arrival in this regard.

General courses such as astronomy, physical science, or physics of science fiction
cannot be included to satisfy requirements for the major, although an interdiscipli­
ary course such as biophysics could be appropriate. At the upper division, independent
investigation and the use of modern scientific instrumentation (such as lasers, lock-in
amplifiers, multichannel analyzers, nuclear counters, oscilloscopes, radiation detec­
tors, spectrometers and vacuum leak sensors) are emphasized. Students planning grad­
uate study should consult faculty advisors about increased course content in upper
level physics courses; a double major will be encouraged where appropriate. Elective
4000 level courses are offered on an alternate year basis: extra courses (e.g., ad­
vanced mechanics, gravitation, relativity, lasers, plasma physics, elementary particles,
nonlinear optics) and laboratory work will be provided on demand for individual stu­
dents.
Research interests of the faculty include astrophysics, atmospheric electricity, biophysics, computing, instrumentation, lasers, mathematical modeling, nuclear physics, optics, plasmas, radio-astronomy, solar energy.

**MINOR**

The Department of Physics offers a minor consisting of a minimum of 34 quarter hours.

Required courses: PHY 2040, 2041, 2042, 2041L, 2042L and in addition either option (a) or (b).

(a) experimental option: PHS 3151; PHY 3752C, 3722C, 3802L, 3803L
(b) theoretical option: PHY 3043, 3044, 3045, 3046, 3047.

**BACHELOR OF SCIENCE: PHYSICS**

**Degree Requirements**

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 134 and 152)

3. Required Courses

   The courses listed, or departmentally approved equivalents, are required in the physics curriculum.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BSC 1010C</td>
<td>Basic Biology</td>
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<tr>
<td>CHM 2045,</td>
<td>Chemistry Fundamentals I</td>
<td>10</td>
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<td>2046, 2047</td>
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<td>CHM 2046L</td>
<td>Chemistry Fundamentals Laboratory</td>
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<td>CHM 2120C</td>
<td>Analytical Fundamentals</td>
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<tr>
<td>COP 3215</td>
<td>Programming and Numerical Methods</td>
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<tr>
<td>ENC 3355</td>
<td>Professional Report Writing II</td>
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<tr>
<td>MAC 2154</td>
<td>Analytic Geometry</td>
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<tr>
<td>MAC 3311,</td>
<td>Calculus I, II, III</td>
<td>12</td>
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<tr>
<td>3312, 3313</td>
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<td>MAC 3314</td>
<td>Intermediate Calculus</td>
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<td>MAP 3305</td>
<td>Differential Equations</td>
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<td>PHY 2040,</td>
<td>General Physics I, II, III</td>
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<td>2041, 2042</td>
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<td>PHY 2041L,</td>
<td>General Physics Laboratory I, II</td>
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<td>2042L</td>
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<td>PHY 3043</td>
<td>Mechanics</td>
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<td>PHY 3044</td>
<td>Electricity and Magnetism</td>
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<td>PHY 3045</td>
<td>Electromagnetic Waves</td>
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<td>PHY 3046</td>
<td>Wave Mechanics</td>
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<td>PHY 3047</td>
<td>Thermodynamics and Statistical Physics</td>
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<td>PHY 3151</td>
<td>Computer Methods in Physics I</td>
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<td>PHY 3101</td>
<td>Modern Physics</td>
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<td>PHY 3421</td>
<td>Optics and Wave Motion</td>
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<td>PHY 3752C</td>
<td>Physics of Scientific Instruments</td>
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<td>PHY 3722C</td>
<td>Physics Laboratory—Electronics</td>
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<td>PHY 3802L</td>
<td>Intermediate Physics Laboratory I</td>
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<td>PHY 3803L</td>
<td>Intermediate Physics Laboratory II</td>
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<td>PHY 4932</td>
<td>Physics Seminar</td>
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<tr>
<td>STA 3032</td>
<td>Probability &amp; Statistics for Engineers</td>
<td>3</td>
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</table>
4. Restricted Electives
   Upper division PHYS courses or those to be used in partial fulfillment of the require-
   ments of a double major 6 hours
   A second course in Biological Sciences is required 3 to 5 hours

5. Electives
   A plan for use of electives must be approved no later than the junior year by a
   departmental committee 12 to 14 hours
   Total Quarter Hours Required 180

PREPROFESSIONAL PROGRAMS

Preprofessional Coordinator: R. Laird, AD 214, Phone 275-2691

The Office of the Preprofessional Coordinator has been created to operate as a ser­
vice to all students preparing for and seeking admission to professional schools of
dentistry, medicine, optometry, pharmacy, podiatry and veterinary medicine. The ser­
vices afforded the student through this office are numerous and range from simple ad-
vising and counseling in preprofessional matters to providing a compiled preprofes­
sional evaluation of the student upon his request to each professional school to which
he desires to apply. However, in order to be considered for a Compiled Preprofes­
sional Evaluation, the student must have a minimum of a 2.8 overall GPA and at least 45
quarter hours of typical undergraduate preprofessional courses taken at FTU by the
end of the Spring Quarter preceding his application to the professional school. Addition­
ally, during the first week of every term, each preprofessional student must register
with the Office of the Preprofessional Coordinator his or her interest to begin or con­
tinue participation in the preprofessional program. Finally, all preprofessional stu­
dents are strongly encouraged to affiliate with and participate in the activities of the
Preprofessional Medical Society (VC 226).

PREPROFESSIONAL PLANNING

Although many professional schools accept students who have satisfactorily com­
pleted two or three years of college and possess excellent credentials, a large and
growing number require the completion of the baccalaureate degree. In any event, the
applicant with given credentials and in possession of the baccalaureate degree by the
time of anticipated admission will find himself in a much more competitive position for
a place in a professional school than a comparable applicant not in possession of the
degree. For this reason each preprofessional student is urged to choose a degree­
granting program for a major since majors such as “premed” do not lead to the award­
ing of a degree. Also, each student is encouraged to pursue a degree program to pre­
pare himself for an alternate career in the event he is denied a place in a professional
school. The prospective preprofessional student may select as his major any degree­
granting program offered at Florida Technological University; however, those degree
programs within the College of Natural Sciences will lend themselves most easily to
the preprofessional preparation due to the nature and content of their curricula. While
satisfying his degree requirements, the student will find in his curriculum many courses
that are also admission requirements to most professional schools. In addition he will
find in his curriculum adequate elective hours which will permit him to obtain other
courses required for admission to a professional school but not specifically contained
within the curriculum of his degree program.

Obviously, preprofessional students are expected to be high achievers, to obtain
good grades with heavy loads and rigorous course combinations. Most professional
schools expect applicants to present at least a B average and to carry a minimum of 15
credit hours every term they are enrolled.
Concerning required courses, all preprofessional students are required to complete the Basic Environmental Studies Program (BESP) plus the following courses, many of which are applicable to the BESP:

- General biological sciences, BSC 1010C, ZOO 1010C
- Genetics, PCB 3063C
- General chemistry, CHM 2045, 2046, 2047, 2046L, 2120C
- Organic chemistry, CHM 3210, 3211, 3212, 3211L
- Microbiology, MCB 2013C
- English composition, ENC 1103, 1135, 3355
- Analytic geometry, MAC 2154
- Calculus, MAC 3233 (although MAC 3233 is acceptable, the MAC 3311, 3312, 3313 sequence is preferable)
- Physics, PHY 2050C, 2051C 3752C (although the preceding courses are acceptable, the sequence PHY 2040, 2041, 2042, 2041L, 2042L is preferable)
- Statistics, STA 3023

Furthermore, additional required/strongly recommended courses not common to all preprofessional students are the following:

- **Premedical and predental** students should take
  - Cell physiology, PCB 3203C
  - Comparative anatomy, ZOO 3713C, 3714C
  - Embryology, ZOO 4603C
  - Microbiology, MCB 3030C, 3203C and PCB 3233
  - Analytical chemistry, CHM 3121C, 3122C, plus either (or both) Biochemistry, CHM 4053, 4054, 4055, or Physical Chemistry, CHM 3410.

- **Preoptometry** students must take
  - General botany, BOT 1010C
  - Microbiology, MCB 3030C and it is strongly recommended they take Human Anatomy and/or Human Physiology, ZOO 3733C, 3703C

- **Prepharmacy** students must take
  - General botany, BOT 1010C
  - Microbiology, MCB 3030C and it is strongly recommended they take Microbiology, 3203C

- **Preveterinary** students must take
  - General botany, BOT 1010C
  - Analytical chemistry, CHM 3121C
  - Animal Science, these courses to be taken as a transient student at the University of Florida, preferably during the summer following the sophomore year.

All preprofessional students are strongly encouraged to make prudent selections of elective courses complementary to their preprofessional preparation. Listed below are a number of appropriate courses from which elective selections can be made.

- Health Sciences: HSC 3152, 3328, 4902, 4411.
- Accountancy: ACC 2304 and 2324, or ACC 3003.
- Management: MAN 3006.
- Political Science: PUP 4604.
- Psychology: CLP 3143, DEP 3212, PSB 3002, PSB 3442, PSB 4013C.
- Sociology: SOC 3110, 3161, 3251, 4160, 4230, 4241; SOW 3203, 3225, 3226.

Various nationally standardized examinations are required of applicants as a part of the admissions process to the professional schools [dentistry-DAT; medicine—MCAT; optometry-OCAT; pharmacy-PCAT; podiatry-MCAT; veterinary medicine-GRE]. These examinations are generally offered twice each year: in the spring and fall. Preprofessional students are advised to take the appropriate examination in the spring preceding application to the professional school rather than waiting for the fall examination.
Publications of special interest and usefulness to preprofessional students include the following:

1. *Admission Requirements of U.S. and Canadian Dental Schools*, published by the American Association of Dental Schools;
2. *Medical School Admission Requirements, United States and Canada*, published by the Association of American Medical Colleges;
4. *Information for Applicants to Schools and Colleges of Optometry*, published by the Association of Schools and Colleges of Optometry;
5. *Pharmacy School Admission Requirements*, published by the American Association of Colleges of Pharmacy;

Each preprofessional student is encouraged to obtain a copy of the publication appropriate to his preprofessional area. These publications are usually available in the University bookstore.

Those students who successfully gain admission to a professional school after the completion of the junior year of a degree program within the College of Natural Sciences at Florida Technological University may apply for a Bachelor of Science degree after successfully completing the first year of study (not less than 45 quarter credit hours) with a grade point average of "C" or better at an approved professional school. Following completion of the first year of professional study, the student should request the dean of the professional school to forward to the Dean of the College of Natural Sciences at Florida Technological University a transcript of credits and a recommendation that the degree be conferred.

**COLLEGE OF NATURAL SCIENCES**

**GRADUATE PROGRAMS**

Graduate programs leading to a Master of Science degree are available in Biological Science, Computer Science, Industrial Chemistry, and Mathematical Science.

**MASTER OF SCIENCE: BIOLOGICAL SCIENCE**

*Program Coordinator: F. Snelson, BL 203, Phone 275-2141*

The Department of Biological Sciences offers graduate work with research and courses in biology, botany, limnology, microbiology and zoology under three options: (1) Biological Sciences Thesis, (2) Biological Sciences Nonthesis, and (3) Microbiology Thesis. A majority of the graduate level courses are offered in late afternoon or evening to better serve the working student.

**Admission Requirements**

1. University Admission Requirements  
   (See pages 40 and 51)

2. Program Admission Requirements  
   Admission is based on the applicant’s potential to achieve academic success and become a productive scholar, teacher or research investigator in the Biological Sciences as determined by: letters of recommendation; past research and academic records; GRE verbal and quantitative scores; and applicant’s statement of immediate and long range goals. Personal interviews are helpful but are not required. Applicants need not have an undergraduate degree in the Biological
Sciences but are expected to have the equivalent of 12 quarter hours credit in biology, 4 in botany, 8 in organic chemistry, 4 in microbiology, 4 in zoology, plus basic college mathematics and statistics.

Degree Requirements

1. University Graduate Requirements
   See the current FTU Graduate Procedures Manual available in the Office of Graduate Studies

2. Prerequisites: as specified above under Admissions Requirements plus any background deficiencies as determined by advisor or committee.

3. Core Courses: The following courses are required.
   - BSC 6406 Field Methods for Biology 3 hours
   - BSC 6407C Laboratory Methods for Biology 3 hours
   - PCB 6206 Molecular Biology 3 hours
   - PCB 5585 Genetic Mechanisms 3 hours
   - BSC 6938 Graduate Seminar 5 hours
   - PCB 6426C Population Ecology 3 hours

4. Restricted Electives: Varies with option (see Area of Specialization).

5. Thesis/Research report: Varies with option (see Area of Specialization.) 9-3 hours.

6. Examinations: Final oral exams covering (a) course work, general comprehension in biology and (b) thesis research and results.

   Total Quarter Hours Required
   - Thesis Option 45
   - Nonthesis Option 54

AREAS OF SPECIALIZATION (OPTIONS)

Students must select one of the following three options.

1. Biological Sciences Thesis Option
   Required courses beyond core:
   - Group A (5 hours—one course)
     - PCB 5585 Genetic Mechanisms 5 hours
     - PCB 6426C Population Ecology 5 hours
   - Group B (17 hours—All courses)
     - PCB 5675 Evolutionary Biology 3 hours
     - PCB 6746C Organismal Physiology 5 hours
     - PCB 6971 Biology Thesis 9 hours
   - Group C (Restricted Electives—minimum of 6 hours)
     Additional coursework acceptable to the student’s graduate committee.

2. Biological Sciences Nonthesis Option
   Required courses beyond core:
   - Group A (5 hours—one course)
     - PCB 5585C Genetic, Mechanisms 5 hours
     - PCB 6426C Evolutionary Biology 5 hours
   - Group B (11 hours—All courses)
     - PCB 6918 Biology Research Report 3 hours
     - BOT 5705C Plant Biosystematics 5 hours
     - MCB 5205 Infectious Process 3 hours
   - Group C (4-5 hours—one course)
     - ZOO 5206C Aquatic Invertebrates 5 hours
ZOO 5463C Herpetology 4 hours
ZOO 5475C Ornithology 4 hours
ZOO 5483C Mammalogy 4 hours

Group D (Restricted Electives—minimum of 13-14 hours)
Additional coursework acceptable to the student's graduate committee containing at least 6 hours of Biological Sciences graduate level courses.

3. Microbiology Thesis Option
   Required courses beyond core:
   Group A (24 hours—All courses)
   APB 5581C Applied Microbiology 4 hours
   MCB 5205 Infectious Process 3 hours
   MCB 5505C Virology 4 hours
   MCB 6417 Microbial Metabolism 4 hours
   MCB 6971 Microbiology Thesis 9 hours
   Group B (Restricted Electives—minimum of 4 hours)
   Additional coursework acceptable to the student's graduate committee.

MASTER OF SCIENCE: INDUSTRIAL CHEMISTRY

Program Coordinator: G. Mattson, SC 329, Phone 275-2209

The Department of Chemistry offers graduate work leading to the Master of Science in industrial Chemistry. This program is aimed particularly at preparing a student for a career in the chemical industry or in related industries which utilize chemical processing techniques. The primary emphasis is upon chemistry and the application of the theoretical principles of chemistry to the development of products and processes.

ADMISSION REQUIREMENTS

1. University Admission Requirements
   (See pages 40 and 51)

2. Program Admission Requirements
   a. Baccalaureate degree from an accredited institution
   b. Departmental evaluation based upon
      (1) Transcripts
      (2) Letters of recommendation
      (3) Proficiency examinations which may be required. (Results may be used to aid in planning the student's program of study. Deficiencies may require remedial course work.)

Degree Requirements

1. University Graduate Requirements
   See the current FTU Graduate Procedures Manual available in the Office of Graduate Studies.

2. Prerequisites: See admission requirements above.

3. Core Courses: The following courses are required.
   CHS 5200, 5201, 5202 Chemical Structure I, II and III 6 hours
   CHS 5240, 5241, 5242 Chemical Dynamics I, II and III 6 hours
   CHS 5250, 5251, 5252 Chemical Synthesis I, II and III 6 hours
   CHS 6260C Separation Processes 3 hours
CHS 6261 Chemical Processes 3 hours
CHS 6262C Process Kinetics and Control 3 hours
CHS 6263 Chemical Process Economics 2 hours

4. Restricted electives: Selected courses in business, computer science, engineering and statistics in keeping with student's particular needs, interests and background and as approved by the advisory committee.

5. Research:
   CHM 6918 Research (A Research Report is required) 13 hours

6. Examinations: Satisfactory completion of a comprehensive examination is required.

Total Quarter Hours Required 45

MASTER OF SCIENCE: COMPUTER SCIENCE

Program Coordinator: T. Frederick, FA 461, Phone 275-2341

The Department of Computer Science offers an M.S. degree in Computer Science with emphasis in the areas of programming systems/languages, information systems, computer architecture, and computational methods. The "hands on" use of our computer laboratories is strongly encouraged. A majority of the graduate level courses are offered in the evening to better serve the working student.

ADMISSION REQUIREMENTS

1. University Admission Requirements
   (See pages 40 and 51)

2. Program Admission Requirements
   Admission to regular graduate student status in Computer Science must be approved by the Graduate Committee in Computer Science. An undergraduate degree in Computer Science is desirable but not required. Applicants without a strong undergraduate background in Computer Science will be required to demonstrate an understanding of the material covered in COP 4530, COP 4550, COP 4620, CDA 4102 and CNM 4110; i.e., take the deficient courses, score well on the advanced GRE in Computer Science. Applicants not qualified for regular status will be initially admitted to the University in a post-baccalaureate status. While in this latter classification, students may not take 6000-level courses in Computer Science.

Degree Requirements

1. University Policies and Procedures
   See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies.

2. Prerequisites: See Admission requirement.

3. Core Course: The following courses are required
   COP 5613 Operating System Design Principles 4 hours
   CIS 5012 Information and File Systems 4 hours
   CDA 5106 Analysis of Computer Architecture 4 hours
   CNM 5142 Computational Methods/Linear Systems 4 hours

4. Restricted Electives:
   a. Two courses within a single area of specialization 8 hours
   b. One course from a second area of specialization 4 hours

5. Thesis and Research Report:
   a. CAP, CDA, CIS, CNM, COC, COP, COT 6918 Research Report 4 hours
   b. CAP, CDA, CIS, CNM, COC, COP, COT 6971 Thesis (up to) 9 hours

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6. Examinations:
   Oral defense of Thesis or Research Report.
   Total Quarter Hours required
   Thesis Option (Course requirements) 36 hours
   Non-Thesis Option (Course requirements) 41 hours

AREAS OF SPECIALIZATION
1. Computational Methods (CNM 6144, 6145, STA 6807)
2. Computer Organization and Architecture (CDA 6107* CAP 6723, CDA 6166, CDA 6108)
3. Information Systems (CIS 6041, 6122, 6124)
4. Programming Systems and Languages (COP 6555, 6614, 6642, 6615, 6643)
   *This course must be taken if this is the major area of specialization.

MASTER OF SCIENCE: MATHEMATICAL SCIENCE
Program Coordinator: L. Andrews, FA 453, Phone 275-2341

The masters program in Mathematical Science is an interdisciplinary program intended to provide a broad base in applied mathematics, statistics and computer science. The emphasis throughout the program is on the use of the techniques of mathematical science in the formulation and solution of mathematical models encountered in the physical and life sciences, engineering and business. The program is offered entirely in the evening hours to accommodate the working student. A limited number of graduate teaching and research assistantships are available for qualified students.

Admission Requirements
1. University Admission Requirements
   (See pages 40 and 51)
2. Program Admission Requirements
   Students entering the graduate program with regular status are assumed to have a working knowledge in such areas as calculus, differential equations, linear algebra (or matrix theory), statistics and computer programming at the undergraduate level. Those students who find they are not adequately prepared in one or more of these areas can select appropriate courses from the undergraduate curriculum to make up such deficiencies. Applicants not qualified for regular status will be initially admitted to the University in a post-baccalaureate status.

Degree Requirements
1. University Graduate Policies and Procedures
   See the current FTU Graduate Procedures Manual available in the Office of Graduate Studies.
2. Prerequisites: See admission requirements above.
3. Required Courses:
   A minimum of 36 quarter hours of coursework meeting the following requirements must be taken:
   The courses chosen must include graduate level mathematics, statistics and computer science courses which are approved by the student's committee. Suggested mathematics courses for meeting this requirement are:
   MAA 5211 Advanced Calculus I 3 hours
   MAA 6212 Advanced Calculus II 3 hours
MAA 5405 Techniques of Complex Variables 4 hours
MAP 6406 Methods of Mathematical Analysis I 4 hours
MAP 6407 Methods of Mathematical Analysis II 4 hours

Suggested statistics courses for meeting this requirement are:
STA 5156 Probability for Engineers 3 hours
STA 5326 Statistics for Engineers 3 hours
STA 6807 Computational Methods/Stochastic Systems 4 hours
STA 5206 Statistical Analysis 3 hours
STA 5707 Multivariate Statistical Methods 4 hours

Suggested computer science courses for meeting this requirement are:
CNM 5142 Computational Methods/Linear Systems 4 hours
CNM 6144 Computational Methods/Analysis I 4 hours
CNM 6145 Computational Methods/Analysis II 4 hours

4. Restricted Electives
Electives may be chosen from approved mathematics, statistics or computer science courses which are taught by the Department of Mathematics and Statistics or the Department of Computer Science. Graduate courses outside these departments may also be used if approved by the student's committee.

5. Thesis or Research Report
Anywhere from 3 to 9 quarter hours of credit may be given for the writing of a paper on some appropriate topic. Ordinarily a paper which is of sufficient magnitude to justify awarding more than 5 hours of credit is considered a thesis. Otherwise it is considered a research report.

6. Examinations
a. A written and/or an oral comprehensive examination over the core courses will be administered by the student's advisory committee. The form and nature of the examination(s) are at the discretion of the advisory committee.
b. An oral defense of the thesis will be required of those students who elect to write a thesis.

<table>
<thead>
<tr>
<th>Total Quarter Hours Required</th>
<th>45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis Option</td>
<td>36 (Course requirements)</td>
</tr>
<tr>
<td>Non-Thesis Option</td>
<td>40 (Course requirements)</td>
</tr>
</tbody>
</table>
COLLEGE OF SOCIAL SCIENCES

UNDERGRADUATE PROGRAMS

Allied Legal Services (BA)
Anthropology (BA)
Communication (BA)
Communicative Disorders (BA)
Criminal Justice (BA)
Economics (BA)
Film (BA)
Journalism (BA)
Political Science (BA)
Psychology (BA)
Public Administration (BA)
Radio-Television (BA)
Social Sciences (BS)
Social Work (BA)
Sociology (BA)
Speech (BA)

GRADUATE PROGRAMS

Clinical Psychology (MS)
Communication (MA)
Industrial Psychology (MS)
Public Policy (MPP)

COLLEGE OF SOCIAL SCIENCES

Dean: B. Kissel, CB 202, Phone 275-2291
Associate Dean: J. Rollins, CB 202, Phone 275-2293
Assistant to the Dean: L. Tanzi, CB 310, Phone 275-2492

In keeping with the aims of Florida Technological University, the College of Social Sciences provides curricula designed: (1) to develop competence in specialized professional disciplines through academic and practical preparation; (2) to provide increased awareness of the development, purposes, and functioning of the social sciences in the world that surrounds us. The College awards the baccalaureate degree with majors in the following areas: Allied Legal Services, Communication, Communicative Disorders, Criminal Justice, Economics, Film, Journalism, Political Sciences, Psychology, Public Administration, Radio-Television, Social Sciences, Social Work, Sociology, and Speech. The College also awards the Masters Degree in Communication, Psychology, and Public Policy.

In addition to providing specialized training, the College of Social Sciences functions in a service capacity by making available a selection of courses designed to complement the offerings of the other five colleges of the University.

A student enrolled in the college as an undergraduate must fulfill all University degree requirements including the Environmental Studies Program, as well as the particular requirements set forth by the department for each area of specialization. To be certified for graduation, a student must achieve at least a "C" grade point average (2.0) in the courses of his major.
A student whose written or oral communication in any course is deemed unsatisfactory may be referred to the Dean by the instructor. Additional course work or an individual study program may be assigned consistent with the needs of the student and must be completed before the degree is granted.

MINOR

The College of Social Sciences and the College of Humanities and Fine Arts jointly offer a minor in Afro-American Studies consisting of a minimum of 24 quarter hours. Required courses: AMH 3570, ENG 4574, LIT 4324, SOC 3720. The student should be advised by the Program advisor prior to registration.

AEROSPACE STUDIES

Chairman: L. Samelson, CB 303, Phone 275-2264
Faculty: Diller, Korose, White

The Department of Aerospace Studies provides pre-commissioning education for qualified students who desire to serve as commissioned officers in the active duty Air Force. The department offers both the four-year and two-year Air Force ROTC programs. The four-year program provides on-campus study during the freshman through senior years. The two-year program allows community college transfer students and other students with two academic years remaining in either undergraduate or graduate status to earn an Air Force commission while completing their studies. Both programs offer scholarships for selected students. Students are invited to write or visit the Department of Aerospace Studies to obtain additional information.

CURRICULUM

Students enrolled in the Air Force ROTC program may major in any academic discipline and earn a minor in Aerospace Studies. A major is not offered by this department. AFROTC courses are listed under the prefix AFR. The curriculum is divided into two phases:

1. General Military Course (GMC)
   The General Military Course consists of the freshman and sophomore courses for students in the four-year AFROTC program. These courses deal with the mission, organization, and structure of the U.S. Air Force, and the development of air power into a prime element of American national security.

2. Professional Officer Course (POC)
   The Professional Officer Course consists of Aerospace Studies courses offered during the junior and senior years. The POC must be completed by all students who seek a commission through the Air Force ROTC. The curriculum involves the study of concepts of leadership and management in the Air Force and an analysis of the formulation and implementation of American defense policy.

REQUISITES FOR ADMISSION TO THE PROFESSIONAL OFFICER COURSE (POC)

1. Be at least 17 years of age at the time of acceptance.
2. Be able to complete the Professional Officer Course and complete all degree requirements prior to reaching age 26 years and 6 months if entering Flight Training or before age 30 if entering a non-flying Air Force speciality. (Age 35 for individuals with prior military service).
3. Pass the Air Force Officer Qualifying Test.
5. Complete the application and examination process, preferably prior to January 15 of the year in which they plan to enroll.
6. Selection by the Professor of Aerospace Studies and acceptance by the University.
7. Successful completion of a summer Field Training Course.
8. Enlistment in the Air Force Reserve certifying agreement to complete the POC and accept an Air Force Commission. This enlistment is terminated upon receipt of a commission.

MONETARY ALLOWANCE
All students enrolled in the Professional Officer Course receive a tax-free monetary allowance of $100 per month.

AIR FORCE ROTC SCHOLARSHIP PROGRAM
Scholarships are available for qualified students in both the four-year and two-year AFROTC programs. These scholarships provide for full tuition, fees and required textbooks. In addition, scholarship recipients receive $100 per month.

SUMMER TRAINING
All students must attend a summer Field Training course conducted at an Air Force base. This course includes junior officer training, officer career orientation, and physical conditioning. Students enrolled in the four-year AFROTC program will attend a four-week summer course, normally upon completion of the General Military Course, and they will receive approximately $350. A six-week summer course, which includes a modified version of the General Military Course, is required for students entering the two-year AFROTC program. These students must complete their summer training prior to their formal enrollment in the Professional Officer Course. Students who complete the six-week course receive approximately $560.

FLIGHT INSTRUCTION PROGRAM
Students enrolled in the Professional Officer Course who have been selected for pilot training in the United States Air Force receive 40 hours of classroom instruction and 25 hours of civilian flight training in light aircraft.

OFFICER COMMISSIONS
Students who complete the Professional Officer Course are appointed Second Lieutenants in the United States Air Force Reserve. As reserve officers, they incur an obligated active duty tour of four years (non-flying) of seven years (flying). During this period of active service, they are given the opportunity to attain career status and to obtain a regular commission in the United States Air Force.

MINOR
The Department of Aerospace Studies offers a minor consisting of a minimum of 24 quarter hours. Required courses: AFR 1101C, AFR 1111C, AFR 1120C, AFR 2130C, AFR 2131C, AFR 2104C, AFR 3220C, AFR 3230C, AFR 3231C, AFR 4201C, AFR 4210C, AFR 4211C.

DEPARTMENT OF COMMUNICATION
Chairman: R. Buchanan, FA 234B, Phone 275-2681.
Faculty: Arnold, Bennett, Butler, Davis, Fedler, Hall, Hoglin, Ingram, Johnson, Meeske, Morgan, Mullin, O'Keefe, Pryor, Tanzi, Taylor, Wycoff

The Department of Communication offers degree programs both in general communication and in specialization areas within the discipline of communication. Bachelor of Arts programs are available in communication, communicative disorders, film, journalism, radio-television and speech communication.

An internship program is available to qualified students. This program earns elective
credit only and cannot be applied to the major requirement of 60 hours, unless specified in the major or minor requirement.

Any student contemplating graduate study should be aware of special requirements in some graduate schools, such as foreign languages, statistics and computer programming.

**Communication Proficiency:** Students will be required to attain a satisfactory score on a departmental test encompassing grammar, punctuation, spelling and word usage. Additional information is available from faculty advisors.

**MINOR**

The Department of Communication offers the following minors consisting of a minimum of 24 quarter hours in each minor:

1. Communicative Disorders.
   Required courses: SPA 3001, SPA 4030, LIN 3710, SPA 4201, SPA 4402, SPA 4210.

2. Film.
   Required courses: FIL 3400, RTV 3310, RTV 4312, RTV 4311, MMC 4200; and either RTV 3000 or JOU 3600.

3. General Communication.
   Required courses: COM 3311 and 20 quarter hours from the remaining courses SPC 3425, SPC 4440, SPC 4330, COM 3110, SPC 3445, SPC 4540, COM 3120.

4. Organizational Communication.
   Required courses: COM 3110, SPC 3445, SPC 3301, SPC 3425, SPC 4330, COM 3120.

   Required courses: JOU 3100, ADV 4000, ADV 4300, ADV 4101, ADV 4003, COM 3110.

   Required courses: JOU 3100, JOU 3101, JOU 3200, JOU 4104, MMC 4200, and MMC 4602.

   Required courses: JOU 3100, 3101, 3600; PUR 4000, 4800, 4401.

8. Radio-TV.
   Required courses: RTV 3200, 3000, 4700, 4402; choose one—RTV 3210, 3220, 3310; choose one—RTV 3300, 3501.

   Required courses: COM 3311 and 20 quarter hours from the remaining courses ORI 2001, SPC 3511, SPC 3601, SPC 3605, SPC 3250, SPC 3542, SPC 3301, SPC 4330, SPC 3425.

**BACHELOR OF ARTS: COMMUNICATION**

**Degree Requirements**

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 167)

3. Required courses
   
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>COM 3311</td>
<td>Communication as a Behavioral Science</td>
<td>4</td>
</tr>
<tr>
<td>SPC 4300</td>
<td>Non-verbal Communication</td>
<td>4</td>
</tr>
<tr>
<td>SPC 4540</td>
<td>Attitudes and Communication</td>
<td>4</td>
</tr>
</tbody>
</table>
4. Restricted Electives
Forty-eight (48) quarter hours of Communication Department courses including completion of one of the two areas of specialization listed below.

5. Electives

Total Quarter Hours Required  180

AREAS OF SPECIALIZATION

1. General Communication Requirements
   COM 3301    Interpersonal Communication   4 hours
   SPC 3452    Persuasion   4 hours
   SPC 3425    Group Interaction   4 hours
   MMC 4200    Legal Responsibilities   4 hours

   Select 4 hours from history:
   RTV 3000    Foundations of Broadcasting   4 hours
   JOU 3003    History of American Journalism   4 hours
   MMC 4602    Social Responsibility of Mass Media   4 hours
   SPC 4200    Evolution of Communication Theory   4 hours
   SPC 4651    Rhetoric of Soc and Pol Action   4 hours

   Select 8 hours from motivation:
   MMC 4610    Propaganda and Psychological Warfare   4 hours
   PUR 4000    Public Relations   4 hours
   ADV 4000    Principles of Advertising   4 hours
   RTV 4402    Broadcast Criticism   4 hours
   SPC 3250    Speech and Human Relations   4 hours

   Select 8 hours from research:
   MMC 4609    Opinion and the Mass Media   4 hours
   SPC 4440    Group Dynamics   4 hours
   SPC 4350    Studies in Listening   4 hours
   COM 4918    Research Planning   4 hours

2. Organizational Communication Requirements
   COM 3110    Business and Professional Communication   4 hours
   SPC 3445    Leadership   4 hours
   SPC 3425    Group Interaction   4 hours
   SPC 4440    Group Dynamics   4 hours
   SPC 4350    Studies in Listening   4 hours
   SPC 3301    Interpersonal Communication   4 hours
   COM 3120    Organizational Communication   4 hours
   PUR 4000    Public Relations   4 hours

BACHELOR OF ARTS: Communicative Disorders

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 167)

3. Required Courses
   COM 3311    Communication as Behav. Science   4 hours
   SPA 3001    Introduction to Communicative Disorders   4 hours
   LIN 3710    Biolinguistics   4 hours
   SPA 3552    Differential Diagnosis in Com Dis.   5 hours

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SPA 4201  Com Dis: Articulation       4 hours
SPA 4401  Com Dis: Language       4 hours
SPA 4410  Voice Disorders       4 hours
SPA 4222  Com Dis: Stuttering       4 hours
SPA 4550  Clinical Methods       4 hours
SPA 4250  Organic Speech Dis.       4 hours
SPA 4052  Clinical Observation and Practice       4 hours
SPA 4030  Basic Audiology       4 hours
LIN 2200  Phonetics       5 hours
SPA 3101  Physical Bases of Speech and Hearing       5 hours

4. Restricted Electives

5. Electives

Total Quarter Hours Required       180

BACHELOR OF ARTS: Film (RTV)

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 167)

3. Required courses
   COM 3311 Com as Behav Science       4 hours
   RTV 3000 Foundations of Broadcasting       4 hours
   RTV 3200 Broadcast Techniques       4 hours
   FIL 3400 History of Motion Picture       4 hours
   JOU 3600 Press Photography I       4 hours
   RTV 3310 Filming for TV       4 hours
   RTV 4312 TV Film Production       4 hours
   RTV 4311 TV Film Documentary       4 hours
   MMC 4200 Legal Responsibilities       4 hours
   RTV 3220 TV Production       4 hours
   RTV 4403 RTV and Society       4 hours

4. Restricted Electives
   Sixteen (16) hours from Communication Department offerings

5. Electives

Total Quarter Hours Required       180

BACHELOR OF ARTS: Journalism

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 167)

3. Required courses
   COM 3311 Communication as a Behavioral Science       4 hours
   JOU 3100 Basic Reporting       4 hours
   JOU 3101 News Reporting       4 hours
   ADV 4000 Principles of Advertising       4 hours
MMC 4602 Social Responsibilities of the Mass Media 4 hours
MMC 4200 Legal Responsibilities of the Mass Media 4 hours

4. Restricted Electives
Students must select and complete one of the areas of specialization and earn twelve (12) additional hours of JOU courses beyond those specified in the area of specialization.

5. Electives

Total Quarter Hours Required 180

AREAS OF SPECIALIZATION

1. News-Editorial Sequence
   JOU 3200 Copy Editing 4 hours
   JOU 3202 Advanced Editing 4 hours
   JOU 3600 Photojournalism I 4 hours
   JOU 4104 Public Affairs Reporting 4 hours
   JOU 4300 Feature Writing 4 hours
   JOU 3003 History of American Journalism 4 hours

2. Advertising Sequence
   PUR 4000 Public Relations 4 hours
   ADV 4300 Advertising Media 4 hours
   ADV 4101 Advertising Copy 4 hours
   ADV 4801 Advertising Campaigns 4 hours
   ADV 4003 Advertising Layout and Preparation 4 hours
   COM 3110 Business and Professional Communication 4 hours

3. Public Relations Sequence
   JOU 3200 Copy Editing 4 hours
   JOU 3600 Photojournalism I 4 hours
   PUR 4000 Public Relations 4 hours
   PUR 4800 Public Relations Campaign 4 hours
   PUR 4101 Publications Layout and Preparation 4 hours
   COM 3110 Business and Professional Communication 4 hours

BACHELOR OF ARTS: Radio-Television

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 167)

3. Required courses
   COM 3311 Com as Behav. Sci. 4 hours
   RTV 3200 Broadcast Techniques 4 hours
   RTV 3000 Foundations of Broadcasting 4 hours
   RTV 4403 R/RV and Society 4 hours
   RTV 4700 Broadcast Regulations 4 hours
   RTV 4402 Broadcast Criticism 4 hours
   RTV 4800 Broadcast Management 4 hours
   MMC 4200 Legal Responsibilities 4 hours
   JOU 3100 Basic Reporting 4 hours

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4. Restricted Electives:
   Production—Choose one
   RTV 3210 Radio Production 4 hours
   RTV 3220 Television Production 4 hours
   RTV 3310 Filming for TV 4 hours

   Writing—Choose one
   RTV 3300 Broadcast Journalism I 4 hours
   RTV 3501 Broadcast Community and Prog. I 4 hours

   Sixteen (16) additional hours selected from Communication Department offerings

5. Electives

   Total Quarter Hours Required 180

BACHELOR OF ARTS: Speech

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 167)

3. Required courses
   COM 3311 Com as Behav. Science 4 hours
   SPC 3301 Interpersonal Com 4 hours
   SPC 3542 Persuasion: Motivation 4 hours
   SPC 3511 Argumentation & Debate 4 hours
   SPC 3425 Group Interaction 4 hours
   SPC 3605 Speech Composition 4 hours
   SPC 3520 Speech and Human Relations 4 hours
   SPC 3601 Platform Speaking 4 hours
   SPC 4430 Non-verbal 4 hours

4. Restricted Electives:
   Select 8 hours from research area:
   SPC 3445 Leadership 4 hours
   SPC 4440 Group Dynamics 4 hours
   SPC 4540 Attitudes and Communication 4 hours
   SPC 4550 Studies in Listening Research Planning 4 hours

   Select 5-6 hours from Rhetoric:
   SPC 4651 Rhetoric of Soc. and Pol. Action 4 hours
   ORL 2001 Interpretation I 3 hours
   SPC 3410 Parliamentary Procedure 2 hours
   LIN 2200 English Phonetics and American Dialects 5 hours
   SPC 4200 Evolution of Com Theory 4 hours

   Eleven (11) additional hours selected from Communication Department offerings

5. Electives

   Total Quarter Hours Required 180

MAJOR IN ECONOMICS

Contact Person: J. Rollins, CB 202, Phone 275-2293

The Bachelor of Arts Program is designed to permit greater flexibility in course selection to the Economics major not planning a career in business. Although all
economics courses are offered and administered by the College of Business Administration, they are available to students majoring in economics in the College of Social Sciences. Successful completion of this program leads to the Bachelor of Arts degree with a major in Economics.

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 172)

3. Required Courses:
   - ECO 2023 Principles of Microeconomics 4 hours
   - ECO 2013 Principles of Macroeconomics 4 hours
   - ECO 3101 Intermediate Price Theory 4 hours
   - ECO 3203 Intermediate Money, Income, and Employment Theory 4 hours
   - ECO 3411 Quantitative Methods and Business Decision Analysis 4 hours
   - ECO 4503 Public Finance in the American Economy 4 hours
   - ENC 3352 Professional Report Writing I 3 hours
   - FIN 3233 Money and Banking 4 hours

4. Restricted Electives
   a) ACC 3003 Financial Accounting 5 hours
   or
   ACC 2304 Financial Accounting I 3 hours
   and
   ACC 3233 Financial Accounting II 3 hours
   b) Five courses in ECO or ECP
   c) 36 quarter hours beyond Environmental Studies requirements from Behavioral Sciences, Mathematics, and the Social Sciences.

5. Electives
   Total Quarter Hours Required 180

DEPARTMENT OF POLITICAL SCIENCE

Chairman: H. Kennedy, LR 260A, Phone 275-2608
Faculty: Bledsoe, Handberg, Jervey, M. Jones, Lille, Maddox, Smyth, Stern, Whisler

The discipline of political science deals with the elements of man's political behavior; politics, the study of the diverse institutions, procedures and practices relating to political decision-making; and government, the study of the processes by which political decisions are made operational. Political Science is thus interdisciplinary in its interest and yet segmentally focused into major areas of concern.

Specializations are available in American Political Process and Institutions, Policy Planning and Analysis, International Relations, Comparative Politics, and Political Theory and Behavior.

Although there are no formal language requirements for a political science major, it is strongly recommended that majors planning to continue their education at the graduate level or to pursue a career in international fields acquire a working knowledge of a foreign language.
MINOR

The Department of Political Science offers minors consisting of a minimum of 28 quarter hours in each minor.

1. Political Science.
   Required courses: POS 2041 and two 4000-level courses. In the event a student has taken the varying credit POS 4941, only 4 quarter hours from this course can be used in the minor. Only two Junior College courses (9 quarter hours) will be accepted as part of the minor. Other than these requirements, students may select other Political Science courses with the aid of an advisor. At least 15 quarter hours of the minor must be taken at the upper division level.

2. Political Science/Pre-Law.
   Required courses: POS 2041, POS 4284; at least one from INR 4401, INR 4402, POS 4603, or POS 4604. In the event a student has taken the varying credit POS 4941, only 4 quarter hours from this course can be used in the minor. Only two Junior College courses (9 quarter hours) will be accepted as part of the minor. Other than these requirements, students may select other Political Science courses with the aid of an advisor. At least 15 quarter hours of the minor must be taken at the upper division level.

BACHELOR OF ARTS: POLITICAL SCIENCE

Degree Requirements

1. University graduation requirements
   (See page 40)

2. Environmental Studies Program
   (See page 56)

3. Required Courses
   POS 2041 American National Government 4 hours
   POS 3703 Scope and Methods of Political Science or 4 hours
   POS 3001 Principles of Political Science 4 hours

4. Restricted Electives
   44 quarter hours in the Political Science Department including no less than five courses at the 4000 level. Some remaining elective hours should be taken in such related fields as anthropology, computer science, economics, geography, history, management, mathematics, philosophy, psychology, sociology, or statistics according to the interests of the student and with the concurrence of his advisor. No more than 9 quarter hours toward fulfillment for major requirements will be transferred from community colleges.

5. Electives
   Total Quarter Hours Required 180

AREAS OF SPECIALIZATION

The departmental courses are divided into five areas of specialization. Students are required to take at least one course in four of the five areas.

1. American Political Process and Institutions
   POS 3122 State Government
   POS 3443 Political Parties and Processes
   POS 3463 Interest Groups and Political Movements
   POS 3413 The American Presidency
   POS 3424 Congress and the Legislative Process
2. Policy Planning and Analysis
   PUP 4323  Women and Politics
   POS 4142  Metropolitan Politics
   POS 4155  Policy Problems of Metropolitan Areas
   URP 4026  The Politics of Planning for Urban Communities
   PUP 4003  American Public Policy
   PUP 4503  Government and Science
   PUP 4602  Politics of Health
   PUP 5056  Contemporary American Problems
   POS 4265  Power and Policy in the United States

3. International Relations
   INR 3002  International Relations
   INR 3034  World Political Geography
   INR 3081  Contemporary International Politics
   INR 4224  Contemporary International Politics of Asia
   INR 4274  International Politics of the Middle East
   INR 4244  Inter-American Politics and Organizations
   INR 4102  American Foreign Policy
   INR 4334  American Defense Policy
   INR 4502  International Organizations
   INR 4401  International Law I
   INR 4402  International Law II
   INR 4335  Coercion in International Politics

4. Comparative Politics
   CPO 3103  Comparative Politics
   INR 3024  Nationalism: A Systematic Analysis
   CPO 3034  Politics of Developing Areas
   CPO 3502  Comparative Asian Politics
   POS 4253  Contemporary Revolution and Political Violence
   CPO 4123  Government and Politics of Great Britain
   COP 4643  Government and Politics of the Soviet Union
   CPO 4024  Non-Western Politics

5. Political Theory and Behavior
   POT 3304  Modern Political Ideologies
   POS 4204  Political Behavior
   POT 4003  Political Theory
   POT 4314  Contemporary Democratic Theory
   POS 4209  Political Sociology
   POT 4013  Ancient and Medieval Political Philosophy
   POT 4044  Early Modern Political Philosophy
   POT 4054  Contemporary Political Philosophy
For students who excel, the Department offers an opportunity to earn up to 10 credit hours during a single quarter in a practical experience situation. Under an internship Director, the student is placed in an office of local, state, or national government, a law office, campaign headquarters or similar location.

**PRE-LAW: POLITICAL SCIENCE**

While no specific major is prescribed for admission to law school, many pre-law students elect to major in political science. These individuals must conform to all requirements for the Bachelor of Arts in Political Science degree as well as complete the following required core courses for the Political Science—Pre-Law emphasis:

- POS 2041 American National Government 4 hours
- POS 3703 Scope and Methods of Political Science 4 hours
- or
- POS 3001 Principles of Political Science 4 hours
- POS 4603, 4604, 4401, 4402 Any one 4 hours
- POS 4284 Judicial Behavior 4 hours

**TOTAL** 16 hours

Students are encouraged to work closely with the pre-law advisor in planning their programs. By judicious use of electives, the student not only builds a firm foundation for law school entry, but in addition, acquires a broad vocational training which can result in career options upon graduation.

1. Some suggested electives include:
   - ACC 3003 Financial Accounting
   - BUL 3111 Legal Environment of Business
   - ENC 3352 Professional Reporting Writing I
   - EUH 2545 Introduction to Anglo-American Law
   - LEA 3013 Legal Investigation

**RUSSIAN AREA STUDIES: POLITICAL SCIENCE**

The Department of Political Science in conjunction with the Departments of History, Sociology, Economics, and Foreign Languages offer an interdisciplinary program in Russian Area Studies. A certificate of participation is awarded upon successful completion of prescribed courses. A student with any major may earn the certificate. For further information, contact Dr. Henry Kennedy, LR 260A, phone 275-2608.

**DEPARTMENT OF PSYCHOLOGY**

**Chairman:** R. Connally, CB 317, Phone 275-2216

**Faculty:** Abbott, Blau, Brophy, Burr, Burroughs, Fisher, Frank, Guest, Jaffee, McGuire, O’Hara, Rollins, Shirkey, Smith, Tell, Thomas, Tucker

The undergraduate program provides a general preparation in Psychology with the option to select specialization electives according to student interests. Successful completion of the program leads to the Bachelor of Arts degree with a major in Psychology.

**MINOR**

The Department of Psychology offers a minor consisting of a minimum of 28 quarter hours.

Required courses: a minimum of 19 quarter hours of upper level courses and a minimum of 16 quarter hours must be taken at FTU. A maximum of 4 quarter hours may
be completed in courses identified as independent study. A maximum of 4 quarter hours of PSY 3951 will apply.

**BACHELOR OF ARTS: PSYCHOLOGY**

**Degree Requirements**

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 176)

3. Required Courses
   
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 2013</td>
<td>General Psychology</td>
<td>8</td>
</tr>
<tr>
<td>PSY 3404</td>
<td>Basic Learning Processes</td>
<td>5</td>
</tr>
<tr>
<td>PSB 3002</td>
<td>Physiological Psychology</td>
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<tr>
<td>PSY 3023</td>
<td>Careers in Psychology</td>
<td>2</td>
</tr>
<tr>
<td>PSY 4214</td>
<td>Research Methods</td>
<td>4</td>
</tr>
</tbody>
</table>

4. Restricted Electives
   
   a) Any two
   - SOP 3004 Social Psychology            | 4 hours
   - PPE 3003 Personality Theory          | 4 hours
   - CLP 3143 Abnormal Psychology         | 4 hours
   - DEP 3004 Developmental Psychology    | 4 hours
   
   b) Any one
   - PSY 3302 Psychological Measurement   | 4 hours
   - PSY 4204 Statistical Methods of Psychology | 4 hours

   c) A total of 20 quarter hours in other courses offered by the Psychology Department taken in accordance with the student’s interests and career goals and with the consent of advisor.

5. Electives
   
   Total Quarter Hours Required: 180

**AREAS OF SPECIALIZATION**

The following areas of specialization are available in a Psychology B.A. program. A listing of the courses available in these areas can be obtained from the student’s advisor:

- Industrial Psychology
- Exceptional Populations
- Educational/Counseling
- Community Services
- Clinical Biofeedback and Research Applications

A student in consultation with his/her advisor should determine the area of specialization early in his/her academic career.

**DEPARTMENT OF PUBLIC SERVICE ADMINISTRATION**

**Chairman:** W. Young, CB 336, Phone 275-2603

**Faculty:** Ammons, Becker, Carter, Duffey, Holten, Jones, Korstad, LeFave, Pyle, Stalnaker

**Research Associate:** Brobeil

**Action Project Director:** Porter
The Department of Public Service incorporates three related degree programs: Allied Legal Services, Criminal Justice, and Public Administration.

ALLIED LEGAL SERVICES

Graduates of this program are trained as legal assistants to serve as support staff in law offices, private corporations and public agencies. The graduate is expected to be a mature, highly motivated legal assistant able to move into the fact gathering, research and compilation phases of the law, to be familiar with basic legal procedures and terminology, to be skilled in the rapid and accurate acquisition, recording and reporting of essential information and to be capable of undertaking interview and investigative functions as appropriate.

Two areas of emphasis are offered: (1) The General Program which stresses the area of private legal relations and (2) the Public and Private Corporate Program which concentrates on the legal background required to function in Public Administration and private corporations.

BACHELOR OF ARTS: ALLIED LEGAL SERVICES

Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 165 and 177)
3. Required Courses
   LEA 3013 Legal Investigation 4 hours
   LEA 3001 Law and the Legal System 4 hours
   LEA 3101 Litigation and Trial Practice 4 hours
   LEA 3201 Property Law 4 hours
   BUL 3111 Legal Environment of Business 3 hours
4. Restricted Electives
   Students must complete one of the areas of specialization.
5. Electives
   Total Quarter Hours Required 180

AREAS OF SPECIALIZATION

1. General Program
   LEA 3014 Legal Composition 4 hours
   LEA 4501 Domestic Relations 4 hours
   BUL 3112 Business Law 3 hours
   Ten (10) hours of additional Allied Legal Science coursework
   Twelve (12) quarter hours in allied fields, with advisor approval, which may include Accounting, Business, Economics, Public Administration, etc.
2. Public and Private Corporate Program
   LEA 3801 Administrative Law 4 hours
   PAD 4613 Legal Aspects of Public Administration 4 hours
   LEA 4811 Law and Procedure-Bureaucracy 4 hours
   PAD 4034 Administration of Public Policy 4 hours
   Choose one (1) of the following:
   LEA 4204 Land Use Law I 4 hours
Note: Transfer students from other institutions offering coursework in legal assistant topic areas will be allowed, with consent of their advisor, to apply up to eight (8) quarter hours toward required or LEA courses, and an additional eight (8) quarter hours toward fulfillment of coursework in the allied fields. In essence, every student will be required to take at least thirty-six (36) major quarter hours at FTU prior to graduation. Duplication of courses beyond the allowable hours can be avoided by selection of approved LEA or Allied Restricted Elective.

CRIMINAL JUSTICE

The Criminal Justice program of study is designed to assist the student to attain specific professional career objectives as well as to provide him with a general background in the social and administrative sciences. The program offers three specific areas of specialization: law enforcement, corrections, and justice administration. The satisfactory completion of the curriculum leads to the degree of Bachelor of Arts with a major in Criminal Justice.

BACHELOR OF ARTS: CRIMINAL JUSTICE

Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 165 and 177)
3. Required Courses
   CCJ 2020 Introduction to Criminal Justice 4 hours
   CCJ 3020 Criminal Justice System 4 hours
   CCJ 3300 The Correctional and Penal System 4 hours
   PAD 3003 Public Administration 4 hours
4. Restricted Electives
   a) 32 additional quarter hours of CCJ courses of which no less than 28 hours must be upper division.
      (Note: No more than 8 quarter hours of CCJ upper division courses will be waived in lieu of courses taken at junior colleges.)
   b) 26 quarter hours of Allied Supporting courses to be selected with and approved by the student's advisor.
5. Electives
   Total Quarter Hours Required 180

PUBLIC ADMINISTRATION

Students considering careers in public service at the federal, state or local level may choose to enroll in the Public Administration program, whose internship option offers qualified students a significant opportunity to acquire practical experience in government while completing their undergraduate curriculum.
BACHELOR OF ARTS: PUBLIC ADMINISTRATION

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 177)

3. Required Courses
   - PAD 3003 Introduction to Public Administration 4 hours
   - PAD 4034 Public Policy Administration 4 hours
   - PAD 4803 Metropolitan Administration 4 hours
   - PAD 4835 Fiscal Management 4 hours
   - LEA 3801 Administrative Law 4 hours
   - LEA 4430 Labor Law in the Public Sector 4 hours
   - PAD 4613 Legal Aspects of Public Administration 4 hours
   - PAD/LEA/CCJ 4932 Special Topics 4 hours
   - STA 2014 Principles of Statistics 4 hours

4. Restricted Electives
   a) PAD 4834 Corporate Public Administration I 4 hours
      or
      CRJ 4630 Comparative Justice Systems* 4 hours
   b) LEA 3001 Law and the Paraprofessional 4 hours
      or
      CCJ 3456 The Criminal Justice Manager* 4 hours
   c) LEA 3201 Property Law 4 hours
      or
      CCJ 4470 Financial Administration and Budgetry* 4 hours
   d) Twelve (12) additional quarter hours selected from Public Administration Department offerings

5. Electives

Total Quarter Hours Required 180

DEPARTMENT OF SOCIOLOGY

Chairman: C. Unkovic, LR 114G, Phone 275-2227
Faculty: Allen, Brown, Cook, Dees, Drake, Herman, Hodgin, Jones, Miller, Stearman, Tropf, Wallace, Wando, Washington, Wright

The Department of Sociology offers the student an opportunity to obtain a Bachelor of Arts in Sociology, Anthropology, or Social Work.

Although a foreign language is not required for a sociology major, students planning to continue their education at the graduate level are strongly urged to acquire a working knowledge of a foreign language.

MINORS

The Department of Sociology offers the following minors consisting of the number of quarter hours indicated in each minor:

1. Anthropology.
   Required courses: SOC 3640 or 3600, and SOC 4912 or equivalent courses; ANT 3410, 3142, 3422, LIN 4020; eight additional hours to be chosen in consultation with
the student's advisor. No more than two courses can be transferred from other Sociology/Anthropology departments and no more than ten quarter hours of 1000 and 2000 level Sociology/Anthropology courses can be applied. Minimum number of quarter hours required—36.

2. Social Work
Required courses: SOC 3640 or 3600, and SOC 4912 or equivalent courses; SOW 3302, 3225, 3226, 3745; eight additional quarter hours to be chosen in consultation with the student's advisor. No more than two courses can be transferred from other Sociology/Social Work departments and no more than ten quarter hours of 1000 and 2000 level Sociology/Social Work courses can be applied. Minimum number of quarter hours required—36.

3. Sociology
Required courses: SOC 3640 or 3600, and SOC 4912 or equivalent; a minimum of 24 quarter hours of Sociology courses. No more than two Sociology courses may be transferred from another Sociology department and no more than ten quarter hours of 1000 and 2000 level Sociology courses can be applied. Minimum number of quarter hours required—24.

BACHELOR OF ARTS: SOCIOLOGY

Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 165 and 180)
3. Required Courses
   SOC 2000 General Sociology 4 hours
   SOC 2001 General Sociology 4 hours
   SOC 4912 Research and Research Methods 8 hours
   STA 2014 Principles of Statistics 4 hours
4. Restricted Electives
   a) SOC 3640 The Development of Social Thought 4 hours
      or
   b) ANT 3000 Physical Anthropology 4 hours
      or
   c) Twenty-eight (28) hours of coursework from Sociology department offerings
5. Electives
Total Quarter Hours Required 180

BACHELOR OF ARTS: Anthropology

Degree Requirements
1. University graduation requirements
   (See pages 40 and 56)
2. Special college and/or department requirements
   (See pages 165 and 180)
3. Required courses
   SOC 2000 General Sociology 4 hours
   STA 2014 Principles of Statistics 4 hours
4. Restricted Electives

a. SOC 3640 The Development of Social Thought 4 hours
   or
   SOC 3600 Modern Sociological Thought 4 hours
   ANT 3000 Physical Anthropology and Archaeology 4 hours
   ANT 3410 Social Anthropology 4 hours
   ANT 3511 Physical Anthropology 4 hours
   ANT 3422 Comparative Social Organization 4 hours
   ANT 4086 Method and Research in Anthropology 4 hours
   ANT 4912 Research 4 hours

b. Choose at least one (1) from each grouping:
   Linguistics
   LIN 3010 Principles of Linguistics 3 hours
   LIN 4020 Anthropological Linguistics 4 hours
   Archaeology
   ANT 3142 Old World Prehistory 4 hours
   ANT 3144 New World Prehistory 4 hours
   ANT 3122 Field and Lab. Tech. Arc. 4 hours
   Ethnology
   ANT 3312 Ethnology N. American Indians 4 hours
   ANT 3313 Plains Indians of N. America 4 hours
   Specialized Studies
   SOC 3211 Sociology of Religion 4 hours
   ANT 3432 Culture and Personality 4 hours

5. Electives

   Total Quarter Hours Required 180

BACHELOR OF ARTS: Social Work

The Bachelor of Arts Program in Social Work is accredited by the Council on Social Work Education.

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 180)

3. Required courses
   SOC 2000 General Sociology 4 hours
   STA 2014 Principles of Statistics 4 hours
   SOW 3203 Social Welfare: A Social Institution 4 hours
   SOW 3302 Social Work: Principles and Methods 4 hours
   SOW 3225 Government and Social Welfare 4 hours
   SOW 3226 The Community and Social Welfare 4 hours
   SOW 3104 Human Growth and Development 4 hours
   SOW 3350 Interviewing in Social Work Practice 4 hours
   SOC 4510 Field Experience and Seminar 15 hours

4. Restricted Electives

a) SOC 3640 The Development of Social Thought 4 hours
   or
   SOC 3600 Modern Sociological Thought 4 hours
b) An additional 12 hours of approved SOC, ANT AND SOW courses

5. Electives

MAJOR IN SOCIAL SCIENCES

Contact Person: J. Rollins, CB 202, Phone 275-2293

This unique program offers students an opportunity to become acquainted with the various fields of Social Sciences and to understand better the relationships between those fields. Satisfactory completion of the program leads to the degree Bachelor of Science with a major in Social Sciences.

BACHELOR OF SCIENCE: Social Sciences

Degree Requirements

1. University graduation requirements
   (See pages 40 and 56)

2. Special college and/or department requirements
   (See pages 165 and 183)

3. Required courses
   None

4. Restricted Electives
   a) Choose one
      POS 3703  Scope and Methods of Political Science
      PSY 4214  Research Methods (Psychology)
      SOC 4912  Research Methods (Sociology)

   b) A minimum of 22 quarter hours in each of four Social Science disciplines. The following are the required courses for each discipline selected.

      Communication
      COM 1000  Basic Communication
      COM 3311  Communication as a Behavioral Science

      Economics
      ECO 2023  Principles of Microeconomics
      ECO 2013  Introduction to Aggregate Economics

      Political Science
      POS 2041  American National Government

      Psychology
      PSY 2013  General Psychology
      PSY 2014  General Psychology
      PPE 3003  Personality Theory

      Public Service Administration
      PAD 3003  Introduction to Public Administration

      Sociology
      SOC 2000  General Sociology
      SOC 2001  General Sociology

5. Electives

   Total Quarter Hours Required 180
The College of Social Sciences offers the following graduate programs of study:

Master of Arts: Communication
Master of Science: Clinical Psychology
Master of Science: Industrial Psychology
Master of Public Policy

The College of Social Sciences requires all individuals seeking admission into a graduate program to submit a quantitative-verbal GRE score dating from no longer than 5 years previous.

MASTER OF ARTS: COMMUNICATION

Program Coordinator: R. Buchanan, FA 544, Phone 275-2681

The Department of Communication offers a diversified program, individual and flexible, leading to the Master of Arts Degree in Communication. Instruction is offered in mass communication, communication theory and research, informational and educational systems, persuasion, communicative disorders, and other areas drawn from the divisions of Journalism, Radio-Television, and Speech.

ADMISSION REQUIREMENTS

1. University Admission Requirements
   (See pages 40 and 51)

2. Program Admission Requirements
   a. To be considered for admission, applicants must submit: a quantitative-verbal GRE score dating from no longer than 5 years previous to application for admission
   b. Three letters of recommendation from undergraduate professors.

Degree Requirements

1. University Graduate Policies and Procedures
   See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies.

2. Prerequisites: none

3. Required Courses:
   
   SPC 6219 Modern Communication Theory 4 hours
   COM 6918 Research 8 hours

   A grade of "B" or better must be attained in each required course

4. Restricted Electives: Twelve hours of prescribed courses from communication law, communication systems, small group communication, or specific courses approved by the student's committee.

5. Thesis: A six quarter hour credit thesis is required.

6. Examinations: Students must pass a comprehensive written and oral examination. Students may be required to demonstrate a proficiency in statistics and computer programming.
Master's Programs in Psychology

Psychology Programs Coordinator: J. McGuire, CB 322, Phone 275-2216

The Psychology Department currently offers Master's Degree Programs in Clinical Psychology and Industrial Psychology. All programs require the equivalent of two years of full-time attendance to complete and are designed to prepare individuals for positions as masters of level psychologists working in industrial settings and community agencies.

Emphasis in all programs is on an individual being prepared for an applied position at the completion of each program.

MASTER OF SCIENCE: CLINICAL PSYCHOLOGY

The Clinical Psychology Graduate Program at FTU was initiated for the primary purpose of providing training and preparation for individuals interested in providing professional psychological service to the community. This can be conducted in such settings as community mental health or guidance centers, out-patient psychiatric clinics, public or veteran's psychiatric hospitals, half-way houses, drug treatment centers, college or university counseling facilities, public correctional facilities and allied psychological service agencies.

While the delivery of psychological services comprises the program's primary thrust, this training is accomplished with a rigorous academic foundation in basic psychology including research methods. The program consists of three key areas of professional preparation: (1) Psychological Assessment-Evaluation Skills, (2) Counseling/Psychotherapy Skills, (3) Supervised Internship-Field Experience.

ADMISSION REQUIREMENTS

1. University Admission Requirements
   (See pages 40 and 51)
2. Program Admission Requirements
   a. To be considered for admission, applicants must submit: a quantitative-verbal GRE score dating from no longer than 5 years previous to application for admission
   b. three letters of recommendation
   c. A review of all completed folders March 1 and May 1 for the following September admission.

Degree Requirements

1. University Graduate Policies and Procedures
   See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies.
2. Prerequisites: BA in psychology or special prerequisite courses to be arranged with the program coordinator.
3. Required Courses:
   Approximately 65 quarter hours of work including:
   a. 40 hours academic class work:
      16 hrs. in counseling theory
      16 hrs. in psychological testing/evaluation
      8 hrs. in statistics, research design and evaluation
   b. 10 hours labs and practicums
   c. 8 hours internship (20 hours/week 2 quarter placement)
4. Restricted Electives:
   PSY 6918 Research Report
   or
   PSY 6971 Thesis 4 hours

5. Thesis and Research Report: Four quarter hours of thesis or research report credit are required. Oral defense of thesis or research paper is required.

6. Examinations:
   a. Diagnostic Examination must be successfully completed before beginning second academic year of the program.
   b. Qualifying Examination given after the fourth quarter of study or equivalent.

Total Quarter Hours Required 62

MASTER OF SCIENCE: INDUSTRIAL PSYCHOLOGY

The basic goal of the Industrial Psychology Graduate Program is to train individuals to apply psychological principals and skills effectively to industrial and related settings. The program is designed to lead to a terminal Master's degree whereby graduates from this program will be able to work effectively in a wide range of applied settings including industry, government, and the education fields.

ADMISSION REQUIREMENTS

1. University Admission Requirements
   (See pages 40 and 51)

2. Program Admission Requirements
   a. To be considered for admission, applicants must submit: a quantitative-verbal GRE score dating from no longer than 5 years previous to application for admission
   b. three letters of recommendation

Degree Requirements

1. University Graduate Policies and Procedures
   See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies.

2. Prerequisites: BA in psychology or special prerequisite courses to be arranged with the program coordinator.

3. Required Courses:
   Approximately 65 quarter hours of work including:
   a. 40 hours of academic class work:
      12 hrs. in statistics, research design
      8 hrs. in test theory and selection
      16 hrs. in Professional core courses
      4 hrs. of elective courses
   b. 10 hrs. of practicum and labs

4. Restricted Electives: Consent of advisor required for all electives. 4 hours


6. Examinations:
   a. Diagnostic Examination must be successfully completed before beginning the second academic year of the program.
   b. Qualifying Examination at the end of the first and second year of the program or equivalent.

Total Quarter Hours Required 65
MASTER OF PUBLIC POLICY

Program Coordinator: L. Tanzi, CB 310, Phone 275-2492

The Departments of Political Science and Public Service Administration offer graduate work leading to the Master of Public Policy degree. This program offers a flexible course of study which prepares students for positions as policy analysts and administrators in various modes of public service. The interdisciplinary nature of the programs provide the opportunity to acquire knowledge, master techniques, and develop insights essential for the design, analysis, and effectuation of policy programs at all levels of government.

Two specialization areas are available. The “Policy Analysis” is primarily for individuals interested in the institutions, processes, and behaviors of the political system and the environment in which policy decisions are made. The “Bureaucracy and Public Policy” specialization focuses upon the implementation and administration of policy decisions.

ADMISSION REQUIREMENTS

1. University Admissions Requirements
   (See pages 40 and 51)

2. Program Admission Requirements
   a. Submission of a quantitative-verbal GRE score dating from no longer than 5 years previous to application for admission.
   b. Submission of three letters of recommendation from individuals capable of assessing the applicant’s ability to undertake graduate work successfully.

Degree Requirements

1. University Graduate Policies and Procedures
   See the current FTU Graduate Procedures Manual, available in the Office of Graduate Studies.

2. Prerequisites: Undergraduate study in Political Science or Public Administration desirable. However, individuals with strong backgrounds in related disciplines could be accommodated. Additional course work may be required to remove deficiencies.

3. Required Courses: The following courses are required.
   - PUP 6007 Public Policy and Political Analysis 4 hours
   - POS 6743 Models for Policy Analysis 4 hours
   - PAD 6037 Bureaucracy and Public Policy 4 hours
   - PAD 6310 Planning and Organization for Economic and Social Development 4 hours
   - POS 6734 Research Methods 4 hours
   - POS 6918 or Research Report 6 hours
   - PAD 6918 4 hours

4. Restricted Electives: Select at least one
   - POS 6157 Issues in Urban Policy
   - POS 6127 Issues in State Public Policy
   - PUP 6057 Issues in National Public Policy
   - PUP 6058 Issues in International Public Policy
   - PUP 6717 Issues in Economic Public Policy
   - PAD 6934 Issues in Public Administration

Other electives may be selected from University-wide graduate offerings if each elective is approved by the student’s graduate committee. No more than 8 quarter hours of “C” may be counted toward fulfilling degree requirements. Exceeding 8 quarter hours of “C” and/or unresolved “I” grades in a specific program of study constitutes grounds for dismissal from graduate status.
5. Research Report: Six quarter hours of credit must be earned for an internship or investigatory research project that results in a research report acceptable to the student's graduate committee.

6. Examinations: Individuals must perform satisfactorily on a written comprehensive examination designed to test knowledge and abilities in the core program and specialization selected. Normally this examination will not be administered until at least 40 quarter hours of graduate work are completed. An oral examination will be administered by the student's graduate committee following the completion of the student's research report.

<table>
<thead>
<tr>
<th>Total Quarter Hours Required</th>
<th>50</th>
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</table>
COURSE DESCRIPTIONS

CLASSIFICATION OF COURSES

The University course numbering system is as follows:

1000-2999 are freshman and sophomore level courses and are designed primarily for these students.

3000-4999 are junior and senior level courses and are designed primarily for these and other advanced students. When approved for inclusion in an individual program of graduate study by a supervisory committee approved by the Dean of Graduate studies, selected 4000-4999 courses may serve the needs of individual graduate students.

5000-5999 are beginning graduate and advanced undergraduate level courses—open to graduate students and those seniors who receive approval of the appropriate Dean(s).

6000-6999 are beginning graduate and professional level courses open only to graduate students.

Common Course Numbering

Courses offered by all universities and colleges in the State University System (SUS) have been assigned numbers and prefixes from the Common Course Numbering System so that course credits are readily transferable in the SUS. The State prefix and 4 digit number is listed.

The first digit is controlled by FTU, the second digit designates the major subclassification of the discipline, and the third and fourth digits are assigned to indicate level of complexity of courses and to indicate sequencing of courses.

Course prefixes and numbers in this catalog comply with the State of Florida Common Course Numbering System (CCN). An alphabetical listing of prefixes follows:

ACC Accounting
ADV Advertising
AFH African History
AFR Air Force ROTC
AMH American History
AML American Literature
ANT Anthropology
APB Applied Biology
ARE Art Education
ARH Art History
ART Art
ASH Asian History
AST Astronomy
BCH Biochemistry
BCN Building Construction
BOT Botany
BSC Introductory Biology
BTE Business Teacher Education
BUL Business Law
CAP Computer Applications
CBH Comparative Psychology & Animal Behavior
CCJ Criminology & Criminal Justice
CDA Computer Design/Architecture
<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptions</th>
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<tbody>
<tr>
<td>CES</td>
<td>Civil Engineering Structures</td>
</tr>
<tr>
<td>CHM</td>
<td>Chemistry</td>
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<tr>
<td>CHS</td>
<td>Chemistry-Specialized</td>
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<tr>
<td>CIS</td>
<td>Computer &amp; Information Systems</td>
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<tr>
<td>CJT</td>
<td>Criminal Justice Technology</td>
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<tr>
<td>CLP</td>
<td>Clinical Psychology</td>
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<tr>
<td>CNM</td>
<td>Computational/Numerical Methods</td>
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<tr>
<td>COC</td>
<td>Computer Concepts</td>
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<tr>
<td>COM</td>
<td>Communication</td>
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<tr>
<td>COP</td>
<td>Computer Programming</td>
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<tr>
<td>COT</td>
<td>Computer Theory</td>
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<tr>
<td>CPO</td>
<td>Comparative Politics</td>
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<tr>
<td>CRM</td>
<td>Computer Resources/Management</td>
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<tr>
<td>CRW</td>
<td>Creative Writing</td>
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<tr>
<td>CYP</td>
<td>Community Psychology</td>
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<tr>
<td>DAA</td>
<td>Dance Activities</td>
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<tr>
<td>DAE</td>
<td>Dance Education</td>
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<tr>
<td>DEP</td>
<td>Development Psychology</td>
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<tr>
<td>DHE</td>
<td>Demography &amp; Human Ecology</td>
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<tr>
<td>EAB</td>
<td>Experimental Analysis of Behavior</td>
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<tr>
<td>EAS</td>
<td>Engineering: Aerospace</td>
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<tr>
<td>ECI</td>
<td>Engineering: Civil</td>
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<tr>
<td>ECM</td>
<td>Engineering: Computer Mathematics</td>
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<tr>
<td>ECO</td>
<td>Economics</td>
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<tr>
<td>ECP</td>
<td>Economic Problems &amp; Policy</td>
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<tr>
<td>ECS</td>
<td>Economic Systems &amp; Development</td>
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<tr>
<td>EDA</td>
<td>Education: Administration</td>
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<tr>
<td>EDE</td>
<td>Education: Elementary</td>
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<tr>
<td>EDF</td>
<td>Education: Foundation</td>
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<tr>
<td>EDG</td>
<td>Education: General</td>
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<tr>
<td>EDH</td>
<td>Education: Higher</td>
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<tr>
<td>EDM</td>
<td>Education: Middle School</td>
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<tr>
<td>EDP</td>
<td>Educational Psychology</td>
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<tr>
<td>EDS</td>
<td>Education: Supervision</td>
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<tr>
<td>EEC</td>
<td>Education: Early Childhood</td>
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<tr>
<td>EED</td>
<td>Education: Emotional Disorders</td>
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<tr>
<td>EEL</td>
<td>Engineering: Electrical</td>
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<tr>
<td>EES</td>
<td>Environmental Engineering Science</td>
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<tr>
<td>EEX</td>
<td>Educational: Exceptional Child-Core Competencies</td>
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<tr>
<td>EGC</td>
<td>Guidance &amp; Counseling</td>
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<tr>
<td>EGM</td>
<td>Engineering: Mechanical</td>
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<td>EGN</td>
<td>Engineering: General</td>
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<tr>
<td>EIN</td>
<td>Engineering: Industrial</td>
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<tr>
<td>ELD</td>
<td>Education: Specific Learning Disabilities</td>
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<tr>
<td>EMA</td>
<td>Engineering: Material</td>
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<tr>
<td>EME</td>
<td>Education: Technology &amp; Media</td>
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<tr>
<td>EML</td>
<td>Engineering: Mechanical</td>
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<tr>
<td>EMR</td>
<td>Education: Mental Retardation</td>
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<tr>
<td>ENC</td>
<td>English Composition</td>
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<tr>
<td>ENG</td>
<td>English-General</td>
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<tr>
<td>ENL</td>
<td>English Literature</td>
</tr>
<tr>
<td>ENU</td>
<td>Engineering: Nuclear</td>
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<tr>
<td>ENV</td>
<td>Engineering: Environmental</td>
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<tr>
<td>ENY</td>
<td>Entomology</td>
</tr>
<tr>
<td>ESE</td>
<td>Education: Secondary</td>
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<tr>
<td>ESI</td>
<td>Engineering Systems—Industrial</td>
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<tr>
<td>ETC</td>
<td>Engineering Tech: Civil</td>
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<tr>
<td>ETE</td>
<td>Engineering Tech: Electrical</td>
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<tr>
<td>ETG</td>
<td>Engineering Tech: General</td>
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<tr>
<td>ETI</td>
<td>Engineering Tech: Industrial</td>
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<tr>
<td>ETM</td>
<td>Engineering Tech: Mechanical</td>
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<tr>
<td>COURSES NUMBERED 0-999</td>
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</tbody>
</table>

Depending upon previous background and test scores earned, individual students may be required to complete more than the minimum number of credits required for graduation in their respective degree programs. Courses numbered less than 1000 (State-wide Common Course Numbers) are of subcollegiate level and may not be counted in meeting degree credit hour requirements for graduation.
SPECIAL COURSES

In addition to the regular courses listed in this bulletin, special courses may be available. Consult your academic advisor for details.

<table>
<thead>
<tr>
<th>Undergraduates</th>
<th>Special Grad¹</th>
<th>Grad &amp; Prof</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directed Independent Studies</td>
<td>3905</td>
<td>4906</td>
</tr>
<tr>
<td>Directed Independent Research</td>
<td>4912</td>
<td>5917</td>
</tr>
<tr>
<td>Special Topics/Seminars</td>
<td>3930</td>
<td>4932</td>
</tr>
<tr>
<td>Internships, Practicums, Clinical Practice</td>
<td>3940</td>
<td>4941</td>
</tr>
<tr>
<td>Study Abroad</td>
<td>3955</td>
<td>4956</td>
</tr>
<tr>
<td>Thesis</td>
<td>4970</td>
<td>6071</td>
</tr>
<tr>
<td>Thesis-Specialist</td>
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</tbody>
</table>

These courses may be assigned variable credit. Some may be repeated upon approval.

¹The Special Graduate Courses are primarily for graduate students, but may be taken by advanced seniors with the consent of their deans.

PR: PREREQUISITE

A course in which credit must be earned prior to enrollment in the listed course.

CR: COREQUISITE

A course in which must be taken concurrently with or prior to the listed course.

CI: CONSENT OF INSTRUCTOR

HOURS CODE

Each course listing is followed by a code which shows hours credit, contact hours, and quarters during which the course will normally be offered.

Example:

CHM 3121C Analytical Chemistry I

CHM 3121C carries 3 hours credit but requires 5 contact hours: 2 in class and 3 in laboratory or field work. It is scheduled to be offered in Fall Quarter and Winter Quarter by the College of Natural Sciences.

Quarter designation: F=Fall; W=Winter; S=Spring; Su=Summer.

College designation: BA=Business Administration; ED=Education; EN=Engineering; HFA=Humanities and Fine Arts; NS=Natural Sciences; SS=Social Sciences

AVAILABILITY OF COURSES

The University does not offer all of the courses listed in the catalog each year. The Class Schedule should be consulted for those courses offered each quarter.
ACC 2304  BA 3 (3,0) F,W,S,Su  
Financial Accounting I: Accounting concepts, financial statements, accounting cycle, monetary and fixed assets, inventories, current and long-term liabilities, equity structure of proprietorships, partnerships, corporations.

ACC 2324  BA 3 (3,0) F,W,S,Su  

ACC 3003  BA 5 (5,0) F,W,S,Su  
Financial Accounting: PR: Junior standing. Same as ACC 2304/2324. Credit may not be earned in both ACC 3003 and the ACC 2304, 2324 sequence.

ACC 3101  BA 3 (3,0) F,W,S,Su  
Intermediate Accounting I: PR: ACC 2304,2324 or equivalent. An in-depth review of accounting process, concepts, content of financial statements, framework of accounting theory; cash vs. accrual; statement analysis present value applications.

ACC 3121  BA 5 (5,0) F,W,S,Su  
Intermediate Accounting II: PR: ACC 3800 with a grade of "C" or better. A continuation of ACC 3101.

ACC 3141  BA 5 (5,0) F,W,S,Su  

ACC 3301  BA 3 (3,0) F,W,S,Su  
Management Accounting: PR: ACC 2324 or ACC 3003 or equivalent. Business information requirements; cost accounting concepts and relationships, forecasting and budgeting. Not open to ACC majors.

ACC 3401  BA 4 (4,0) F,W,S,Su  
Cost Accounting: PR: ACC 3101 with a grade of "C" or better. Cost concepts, cost of goods manufactured, job order costing, standard cost.

ACC 3861  BA 3 (3,0) F,S  
Governmental Accounting: PR: ACC 2324 or ACC 3003. Budget accounting and reporting problems of state and national governments.

ACC 4201  BA 5 (5,0) F,W,S,Su  

ACC 4421  BA 4 (4,0) F,W,S,Su  
Cost Analysis: PR: ACC 3401, FIN 3403, ECO 3411 or C.I. Cost-volume-profit analysis, direct costing, budgeting (operational), transfer pricing, joint costs and by-products, quantitative techniques.

ACC 4501  BA 5 (5,0) F,W,S,Su  

ACC 4601  BA 5 (5,0) F,W,S,Su  
Auditing: PR: ACC 3121. The principles, practices and procedures followed in the audit function. Preparation of related working papers and the audit report.

ACC 4934  BA 2 (2,0) F,W,S,Su  
Current Selected Topics: PR: Completion of all other required accounting courses, or concurrent registration, or permission of the Department Chairman.

ACC 5004  BA 4 (4,0)  

ACC 6411  BA 5  
Cost Accounting for Management Decisions: PR: Graduate standing and all foundation courses or equivalents. Emphasis on cost finding and analysis for management decisions.

ACC 6511  BA 5  
Taxation: PR: Graduate standing and all foundation courses or equivalents. An advanced study of tax law with emphasis on business taxes.

ACC 6611  BA 5  
Advanced Auditing: PR: Graduate standing and all foundation courses or equivalents. The study of auditing problems with special emphasis on statistical sampling and the auditing of electronic data processing systems.

ACC 6734  BA 3 (3,0)  
Accounting Analysis: PR: Graduate standing and ACC 5004 or one year of accounting. (Not open for accounting majors.) Accounting as an information measurement system for internal planning and control.
ACC 6735
Computers and Information Systems in Accounting: PR: Graduate standing and all foundation courses or equivalents. Introduction to design and management of information flows integrating accounting within the framework of information systems.

ACC 6805
Contemporary Accounting Theory: PR: Graduate standing and all of foundation courses or equivalents. An examination of the evolution of contemporary accounting theory. Emphasis is on current and future development.

ACC 6866
Specialized Accounting Problems: PR: Graduate standing and all foundation courses or equivalents. A survey of specialized and regulatory accounting practice.

ADV 4000
Principles of Advertising: PR: Junior standing or C.I. Analysis of field of advertising; purposes, techniques, media, organization, and role of research.

ADV 4101
Advertising Copy: PR: ADV 4000. The writing and preparation of advertising copy.

ADV 4003
Advertising Layout and Preparation. Layout and preparation of advertising for the print media. Production and mechanical requirements of print media.

ADV 4103
Radio-Television Advertising: PR: ADV 4000 or C.I. Radio and television as advertisers demands and budget; appropriate programs for the sponsors' needs; writing of commercial continuity.

ADV 4300
Advertising Media: PR: ADV 4000 or C.I. Evaluation of media’s ability to serve the advertiser’s communication needs and analysis used in determining media success.

ADV 4303
Newspaper and Magazine Advertising: PR: C.I. Print advertising as it affects the retail advertiser; the mechanical requirements and limitations in print advertising.

ADV 4801
Advertising Campaign: PR: ADV 4000, ADV 4101, ADV 4300. The planning and execution of an advertising campaign; coordination of campaign elements.

AFH 3341
Sub-Saharan Africa—Western and Central: Survey of history of Western and Central Africa including trans-Saharan influences, Sudanic Empires, Forest Kingdoms, Equatorial Africa, and colonial and national periods.

AFH 3404
Sub-Saharan Africa—Eastern and Southern: Survey of history of Eastern and Southern Africa including origins of man, Bantu migrations, Arab and European influences, and colonial and national periods.

AFR 1101C
The United States Air Force and Strategic Offensive Forces: PR: Qualification for Air Force ROTC or permission of Professor of Aerospace Studies. History, mission, organization and doctrine of the United States Air Force and a study of U.S. Strategic Offensive Forces.

AFR 1111C
Strategic Defense Forces: PR: AFR 1101C or permission of Professor of Aerospace Studies. Concepts of aerospace defense. A study of the various systems and functions associated with defense against manned bombers and missiles.

AFR 1120C
Conventional Military Forces: PR: AFR 1111C or permission of Professor of Aerospace Studies. An introduction to special operations and countersurgency.

AFR 2130C
The Birth of Airpower: PR: AFR 1120C or approval of PAS. A study of the early development of manned flight from the 18th century balloonist through the achievement of mature airpower capabilities prior to World War II.

AFR 2131C
Airpower: Crisis and Maturity: PR: AFR 2130C or approval of PAS. A review of fifteen years of airpower development, highlighting changes in aircraft technology and employment brought about by experiences in WW II and Korea.

AFR 2140C
The Aerospace Age: PR: AFR 2131C or approval of PAS. A study of aerospace power in the contemporary world and its current employment as a force of stability.

AFR 3220C
Leadership and Discipline in the Air Force: PR: GMC or Two-Year Program selection and/or approval of
Professor of Aerospace Studies. The need of Air Force leadership, professional responsibilities of the officer, and need for discipline in the military. Review and survey of military communicative skills.

AFR 3230C  
Principles of Military Leadership and Management: PR: AFR 3201C or approval of Professor of Aerospace Studies. Variables affecting military leadership, traits and interactional approaches to leadership, introduction to military management, and systems approach to Air Force management.

AFR 3231C  
Air Force Management and the Junior Officer: PR: AFR 3210C or approval of Professor of Aerospace Studies. Air Force personnel management policies and the military justice system as they affect the junior officer.

AFR 4201C  
Military Role in Contemporary Society: PR: AFR 3211C or approval of PAS. Examination of the military profession and its role in American Society.

AFR 4210C  
Defense Policy and Strategy: PR: AFR 4220C or approval of PAS. A study of the framework of defense policy and formation of defense strategy including political, economic and social constraints upon the national defense structure.

AFR 4211C  
Implementation of Defense Policy: PR: AFR 4230C or approval of PAS. An examination of defense implementation by the DOD, Congress and the Presidency, and the manner in which they impact on the decision making process.

AFR 4240C  
Introduction to Flight (Pilot): PR: AFR 4220C, 4230C, 4231C and/or permission of the Professor Aerospace Studies. An academic, introductory study of weather, navigation, FAA regulations and flight radio procedures.

AMH 3310  
American Social History.

AMH 3350  
American Political History.

AMH 3370  
American Economic History.

AMH 3402  
History of the South to 1865: Development of the southern colonies, beginning of sectionalism, the cotton economy, slavery, Calhoun's constitutional theories, secession, Civil War and its aftermath.

AMH 3403  
History of the South Since 1865: Reconstruction, the "solid South" and the racial dilemma, progressivism for whites only, southern literature, 20th century economic, political, and social changes, and the new Reconstruction.

AMH 3421  
History of Florida to 1845

AMH 3423  
Florida History 1845—Present

AMH 3441  
History of the Frontier: Eastern America. The progression of the westward movement from the colonial settlements to the Mississippi considered as an interpretive approach to American history.

AMH 3442  
History of the Frontier: Western America. The development of the trans-Mississippi West and its impact upon American history.

AMH 3445  
Spanish Borderlands.

AMH 3551  
U.S. Constitutional History I: Development of the constitutional system and the idea of Constitutionalism from the colonial emphasis on written contracts and natural law through "nullification" and Civil War.

AMH 3552  
U.S. Constitutional History II: Post-war constitutional changes; the curious role of the 14th amendment; expansion of national power over economy and civil rights; increasing popular belief in "Constitutionalism."

AMH 3570  
AMH 4110 Colonial America, 1607-1763: The voyages of discovery, the origins of the thirteen colonies, and their political, economic, social, and religious life in the 17th and 18th centuries.

AMH 4130 The Age of the American Revolution, 1763-1789: The American Revolution—its origins, course, and impact upon American society—the Articles of Confederation, the Philadelphia Convention and its work.

AMH 4140 Jeffersonian America: The Confederation era, the Federalists, Jeffersonian Democracy, and the War of 1812.

AMH 4160 Jacksonian America: The rise of American nationalism, Jacksonian Democracy, the Mexican War and sectional conflict.

AMH 4170 Civil War and Reconstruction: Reconstruction, and impact of industrialism.

AMH 4211 Robber Baron Era: The Agrarian Revolt, the Spanish-American War, and the Progressive Era.

AMH 4231 United States History: 1914-1945: The progressive Reforms of Woodrow Wilson, World War I, post-war prosperity, the Depression, and the New Deal; World War II.

AMH 4270 United States History: 1945-Present: Contemporary America from World War II.

AMH 4311 American Culture I: The European Backgrounds; Puritanism; Enlightenment: the Great Awakening; Revolutionary Thought; Romanticism: the Southern Mind and the Yankee Response; Popular Culture and the rise of recreation.

AMH 4312 American Culture II: The Darwinian Revolution; revolt of the intellectuals; the media explosion; mass entertainment in mass culture; the loss of community, the nuclear age, and presentism.

AMH 4460 Urban History: Growth of cities in U.S. with emphasis on urban culture, business civilization, rural-urban conflict, industrial/technological growth, anti-urban feeling in American culture.

AMH 4510 United States Diplomatic History: 1776-1914: A study of the evolution of basic American policies, American expansion and America's major wars with emphasis upon the international background.

AMH 4511 United States Diplomatic History: 1914-Present: A study of the response of American diplomacy to the breakdown of the European equilibrium, the scientific revolution and the challenge of the totalitarian dictatorships.

AML 3101 Survey of American Literature, 1588-1865

AML 3107 Survey of American Literature, 1865-1914

AML 3111 Survey of American Literature Since 1914

AML 4320 Literature of the South: PR: ENC 1135 or C.I. Development of Southern Literature with emphasis on Ransom, Porter, Faulkner, Tate, Wolfe, Warren, Wright, Welty, Ellison, McCullers, O'Connor, and other writers since World War I.

ANT 3000 Physical Anthropology and Archaeology: Survey of man's place among primates, evolution, genetics, and prehistoric cultural development to the earliest civilizations.

ANT 3122 Archaeological Methods: PR: ANT 3000 or ANT 3410. A seminar surveying archaeological field and laboratory techniques; i.e., bone preservation, zooarchaeology, ethnobotany, cataloguing, classification, and laboratory analysis.

ANT 3141 Prehistory of Complex Societies: An analysis of prehistoric urban systems in Europe, Asia, Africa and the Americas, approached in an evolutionary perspective.

ANT 3142 Old World Prehistory: PR: ANT 3000 and ANT 3410. Fundamentals of archaeological discipline and research
techniques. Surveys prehistoric record of cultural development from earliest times to rise of civilizations in all areas of Old World.

ANT 3144  SS 4 (4,0) W
New World Prehistory: PR: ANT 3000 and ANT 3410. Essentials of New World archaeology, methods, and excavations. Surveys space-time framework of Native American Indian cultures and civilization from earliest times to A.D. 1500.

ANT 3241  SS 4(4,0)
The Anthropology of Religion: Patterns in religious behavior in various societies with primary emphasis on myth, rite, taboo and festival as social phenomena.

ANT 3312  SS 4 (4,0) S
Ethnology of North American Indians: A survey of the aboriginal cultures of North America with emphasis on the pre-contact cultural condition.

ANT 3313  SS 4 (4,0) F

ANT 3332  SS 4(4,0) W
People and Cultures of Latin America: An overview of the history and society of the peoples of Latin America emphasizing patterns of subsistence and social organization.

ANT 3410  SS 4 (4,0) W,Su
Social Anthropology: Framework and principles of sociocultural organization as exemplified among various cultures and ethnic groups.

ANT 3422  SS 4 (4,0)
Comparative Social Organization: PR: ANT 3000 and 3410. Introduction to anthropological viewpoints on role of marriage, family, kin groups, and descent in the study of economic, political and ideological aspects of social organization.

ANT 3424  SS 4(4,0)
Culture and Community: The anthropology of the human community in a cross-cultural context focusing on such aspects as settlement patterns, subsistence activities, social structure and processes of interaction.

ANT 3432  SS 4 (4,0)

ANT 3464  SS 4 (4,0)
Human Microevolution: A study of the forces of evolution operating within contemporary human populations, with particular emphasis upon epidemiological areas of research.

ANT 3511  SS 4 (4,0)
Physical Anthropology: PR: ANT 3000 and 3410. The study of man as a product of the evolutionary process. Study and analysis of diversity among present human populations.

ANT 3512  SS (4,0)
Biobehavioral Anthropology: An introduction to the study of human behavior in terms of mutual interaction between human biology and cultural environments.

ANT 3552  SS 4 (4,0)
Primatology: An introduction to the evolution of non-human primates and to contemporary field and laboratory primatological research.

ANT 4086  SS 4 (4,0) F
Method and Theory in Anthropology: PR: ANT 3000 and 3410. Central methodological and theoretical concerns of anthropology in its emergence as a separate discipline and field of study.

ANT 4705  SS 4(4,0) W
Applied Anthropology: The application of social science to problems of directed social and technological change in industrial as well as non-industrial societies.

ANT 5937  SS 4 (4,0)
Proseminar in Anthropology: An intensive introduction to the study of anthropology. Open to all graduate students and undergraduate students with C.I.

APB 3263  NS 3 (3,0) F

APB 3263L  NS 1 (0,3) W
Pulmonary Physiology Laboratory: CR: APB 3263. Experiments and demonstrations concerning ventilation, mechanics, and gas transport.
APB 3293  
Respiratory Pathology: PR: NS ZOO 3733. Cellular pathology with emphasis on pathology of respiratory and cardiovascular systems.

APB 3293L  

APB 3535C  
Serology: PR: PCB 3233. Laboratory exercises in the production of anti-bodies, agglutination and precipitin reactions; quantitative techniques and isoeffectogglutination.

APB 3600  

APB 4610  

APB 4650  
Medical Pharmacology II: PR: APB 4610. Continuation of APB 4610.

APB 4763 C  
Microbiology of Water and Waste: PR: MCB 3030 or C.I. Organisms in water and their relationship to production and distribution of potable water; disposal of sewage.

APB 5581C  
Applied Microbiology: PR: MCB 3030 or C.I. Microbiology of consumer products: role of microorganisms in world food production and deterioration of consumer products; quality control.

ARE 4313  
Art in the Elementary School: Basic principles, purposes, scope and sequence; organization for instruction; evaluation of activities; selected art experiences.

ARE 4344  
Secondary School Art Instructional Analysis: EDF 3255 and EDF 3603 or C.I. Methods and curriculum materials for teaching Visual Arts in the secondary schools.

ARE 4440  
Two-Dimensional Instructional Materials: PR: ARE 4313 or ARE 4344 or C.I. Application of two-dimensional materials to appropriate levels of instruction; chalk, ink, water color, crayon, tempera, acrylics, paper, fiber, and oils. Lab TBA.

ARE 4441  
Graphic Instructional Materials: PR: ARE 4313 or ARE 4344 or C.I. Application of graphic materials to appropriate level of instruction; direct and indirect basic processes of reproduction of mono and multi-printing. Lab. TBA.

ARE 4443  
Three-Dimensional Instructional Materials: PR: ARE 4313 or ARE 4344 or C.I. Application of three-dimensional materials appropriate levels of instruction: wood, paper, plaster, stone, clay, wax fiber, metal, and synthetics. Lab. TBA.

ARE 4445  
School Found Arts: PR: ARE 4440 and ARE 4443 or C.I. Appropriate materials for instruction in public schools will be examined and utilized.

ARE 4446  

ARE 4643  
Continuing Art Progress in Schools: PR: ARE 4344 or C.I. Programs and innovations for visual arts in the Schools.

ARE 4944  
Secondary School Student Teaching - Block C: PR: ESE 3940. Senior year student teaching in a secondary school under the direction of a certified classroom teacher.

ARE 5304  
Creative Activities in Early Childhood: PR: Rank III Certificate or C.I. Organization of instruction and methods for creative activities involving music, art, literature and educational toys. Integration of activities and basic skills curriculum. Concurrent laboratory experience.
ARE 5358 ED 3 (3,0)
Found Arts: PR: ARE 4440 and ARE 4443 or C.I. Materials available for instruction in the public schools will be explored in depth in relation to their appropriateness and productive qualities.

ARE 5444 ED 3 (3,0)

ARE 5648 ED 3 (3,0)
Contemporary Visual Arts Education: PR: ARE 4344 or C.I. A study of current programs and innovations in public school Visual Arts Programs.

ARE 6446 ED 3 (3,0)
Two-Dimensional Instructional Materials: PR: ARE 4344, and ARE 4440, or C.I. Application of two-dimensional materials to appropriate levels of instructional: chalk, ink, water color, crayon, tempera, acrylics, paper, fiber, and oils.

ARE 6447 ED 3 (3,0)
Three-Dimensional Instructional Materials: PR: ARE 4344, and ARE 4443, or C.I. Application of three-dimensional materials to appropriate levels of instruction: wood, paper, plaster, stone, clay, wax, fiber, metal, and synthetics.

ARE 6449 ED 3 (3,0)
Graphic Instructional Materials: ARE 4344, and ARE 4441, or C.I. Application of graphic materials to appropriate level of instruction: direct and indirect basic processes of reproduction of mono and multi-printing.

ARH 2050 HFA 3 (3,0) F
The History of Art I: Painting, sculpture, and architecture from the Prehistoric Era through the Medieval Period.

ARH 2051 HFA 3 (3,0) W
The History of Art II: Painting, sculpture, and architecture from the Renaissance to the 19th Century.

ARH 2052 HFA 3 (3,0) S
The History of Art III: Painting, sculpture, and architecture of the 19th and 20th Centuries.

ARH 3118 HFA 3 (3,0)
Arts of Pre-Literate Societies: The visual arts in recent and contemporary primitive societies with emphasis on the cultures of Africa and Oceania.

ARH 3530 HFA 3 (3,0)
Asian Art: History of visual arts of China, Japan, India and other Eastern cultures.

ARH 3710 HFA 3 (3,0)
History of Photography: The development of still photography in terms of historical aesthetic, and social impact on Western Culture from 1839 to the present.

ARH 4003 HFA 4 (3,3)
Purposes of Art: An Analysis of the visual arts in terms of their various purposes.

ARH 4020 HFA 4 (3,3)
Developing Visual Creativity: Analysis of the nature of the creative faculties and the development of creativity through visual processes.

ARH 4071 HFA 4 (4,0)

ARH 4700 HFA 3 (3,0)
Art and Technology: The impact of technological developments in the visual arts of the 20th Century.

ARH 4730 HFA 4 (4,0)
Environmental Art: Analysis of aesthetic design factors, related to city planning, architecture, product design, and experimental environmental arts.

ARH 4800 HFA 3 (3,0)
Theory and Criticism of the Visual Arts: Criteria of criticism; analysis of works, elements of psychology and sociology of art. Developments in the arts of the 20th Century.

ART 2201C HFA 3 (2,4) F
Design Fundamentals I: Materials, processes, form. Application to product design, communication design, environmental design, and the visual arts. Emphasis on two dimensional design problems.

ART 2202C HFA 3 (2,4) W
Design Fundamentals II: Continuation of ART 2201. Emphasis on color theory.

ART 2203C HFA 3 (2,4) F,S
Design Fundamentals III: Continuation of ART 2202. Emphasis on three-dimensional design in the various sculptural media.
ART 2300C
Drawing Fundamentals I: Drawing as a means of formal organization. Introduction to problems in drawing methods and media. Emphasis on description techniques.

ART 2301C
Drawing Fundamentals II: Continuation of ART 2300. Emphasis on traditions of spatial organization.

ART 3100C

ART 3110C
Ceramics: PR: ART 2203 or C.I. Basic concepts of ceramic design, experience in processes of forming, decorating, glazing, and firing pottery.

ART 3150C
Jewelry Design: PR: Consent of the instructor.

ART 3230C

ART 3232C
Graphic Design II: PR: ART 3280 or C.I. Methods, materials, and processes related to perceptual studies in graphic design.

ART 3233C
Graphic Design III: PR: ART 3232 or C.I. Studio problems stressing balance between articulation and succinct presentation of information.

ART 3280C
Graphic Design I: PR: ART 2201, 2202 or C.I. Study of classical and historic type as graphic design elements.

ART 3330C

ART 3331C

ART 3332C

ART 3400C
Printmaking: PR: Three quarter hours of Drawing Fundamentals or C.I.

ART 3510C
Painting: PR: Three quarter hours in Design Fundamentals and three quarter hours in Drawing Fundamentals or C.I.

ART 3600C
Photography: PR: ART 2201. Consideration of basic technical and aesthetic factors in using still photography as a vehicle for visual, artistic expression.

ART 3630C
Film Design: Exercises in craft, technique, and design for the film, including animation.

ART 3631C
Cinematography: PR: ART 2630 or C.I. Consideration of basic technical and aesthetic factors involved in using motion pictures as a vehicle for visual, artistic expression.

ART 3670C
Experiments in Art and Technology: PR: Consent of instructor.

ART 3701C
Sculpture: PR: Six quarter hours in Design Fundamentals, to include three quarter hours in three-dimensional work, or C.I.

ART 4108C
Advanced Three-Dimensional Design. PR: ART 3100. May be repeated for credit. Advanced problems in three-dimensional materials, processes, form.

ART 4111C
Advanced Ceramics: PR: ART 3110C. May be repeated for credit.

ART 4130C
Fibers, Fabrics, Textiles and Synthetics: Textile design and production, including non-loom weaving processes. May be repeated for credit.
ART 4151C  
Advanced Jewelry Design: PR: ART 3150C. May be repeated for credit.

ART 4166C  

ART 4235C  
Advanced Graphic Design I: PR: ART 3233 or C.I. Large scale studio problems involving modern graphic design media.

ART 4237C  
Advanced Graphic Design II: PR: ART 4235 or C.I. Problems initiating search for formulae in graphic design photography.

ART 4293C  
Special Problems in Graphic Design: PR: ART 4237 or C.I. May be repeated for credit.

ART 4320C  
Advanced Drawing: PR: ART 3330. May be repeated for credit.

ART 4402C  
Advanced Printmaking: PR: ART 3400. May be repeated for credit.

ART 4530C  
Advanced Painting: PR: ART 3510. May be repeated for credit.

ART 4604C  
Advanced Photography: PR: ART 3600. May be repeated for credit.

ART 4633C  
Advanced Cinematography: PR: ART 3631. May be repeated for credit.

ART 4703C  
Advanced Sculpture: PR: ART 3701. May be repeated for credit.

AST 1005  
Astronomy I: Descriptive survey of solar system, galaxies and universe. Physical properties of stars deduced from their radiation. Night observation sessions. Appropriate for the Environmental Studies Program.

AST 3006  
Astronomy II: PR: AST 1005 or equivalent. Emphasis on stellar and galactic evolution and recent discoveries in astronomy. Appropriate for advanced ESP.

AST 3213  
Astrophysics. PR: PHY 2042 or equivalent. Theories of evolution of stars and planets, models of stellar interiors, properties of stellar atmospheres and spectra. Night sessions for photography.

ASH 3223  
Modern Middle East

ASH 3300  
Survey of East Asia: An introduction to Far Eastern Cultures including India since the Age of the Moguls, China since early European penetration, Japan since the Hermit Kingdom.

ASH 4404  
China in 19th and 20th Centuries: The Mongols in China; coming of the Europeans; social structure; Communist movement; Japanese aggression.

ASH 4442  
Modern Japan, 19th and 20th Centuries: A survey of the Tokugawa Shogunate; Western contact in the 19th century; World War I; Japanese militarism; World War II; and U.S. occupation.

AST 1005  
Astronomy I: Descriptive survey of solar system, galaxies and universe. Physical properties of stars deduced from their radiation. Night observation sessions. Appropriate for the Environmental Studies Program.

AST 3006  
Astronomy II: PR: AST 1005 or equivalent. Emphasis on stellar and galactic evolution and recent discoveries in astronomy. Appropriate for advanced ESP.

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Astrophysics. PR: PHY 2042 or equivalent. Theories of evolution of stars and planets, models of stellar interiors, properties of stellar atmospheres and spectra. Night sessions for photography.

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ASH 4442  
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BCH 4055

BCH 4103L
Biochemical Methods: PR: BCH 1023 or CHM 3212, and CHM 3122. A laboratory course stressing the application of the chemical arts to the separation, identification, and quantification of materials of biological significance.

BCN 3761
Contracts and Specifications: Basic legal principles involved in contractual provisions and interrelationships of specifications and the application of such principles.

BOT 1010C
General Botany: Introduction to botany; plant structure and function with emphasis on forms and applications important to man.

BOT 3223C
Plant Anatomy: PR: BOT 1010. A study of the development, structure and function of the principal organs and tissue of vascular plants.

BOT 3303C
Plant Kingdom: PR: BOT 1010. A survey of the plant kingdom utilizing comparative morphology, structure and functions to demonstrate relationships among extant and extinct forms.

BOT 3713C

BOT 3800
Plants and Man—Ethnobotany: Man's historical and modern uses of plants economically important in various cultures. Designed for non-majors.

BOT 3820
Plants and the Urban Environment: The selection, placement, propagation and care of ornamental plants in residential, and industrial areas. For non-majors.

BOT 4154
Local Flora: PR: BOT 1010 or C.I. Recognition and identification of Florida higher plants, especially those common to central Florida, stressing environmental and ethnobotanical significance. Weekend field trips may be required.

BOT 4403C
Freshwater Algae: PR: BOT 1010 or C.I. A lecture-laboratory course to survey the physiology, diversity and ecology of the freshwater algae.

BOT 4434C
Mycology: PR BOT 3303 or MCB 2013 or C.I. A lecture-laboratory course emphasizing form and function of major fungous groups.

BOT 4503C
Plant Physiology: PR: PCB 3023, or C.I. A study of mechanisms used by plants to cope with their environment.

BOT 4623
Plant Geography: PR: PCB 3043 or PCB 4443 or C.I. The major climatic plant formations of the world and historical plant geography.

BOT 5495C
Bryology: PR: BOT 3303 or C.I. A lecture-laboratory survey course on the diversity and classification of mosses, liverworts and hornworts with special emphasis on those found in Florida.

BOT 5705C
Plant Biosystematics: PR: BOT 3713. Evolutionary relationships, plant taxa and populations utilizing cytological, morphological, and biochemical techniques.

BOT 6146C
Field Botany: PR: 12 hours in biological sciences or science teaching experience or C.I. Classification and identification among lower and higher plant groups with emphasis on field experience. Major reference sources reviewed.

BSC 1010C
Basic Biology: Basic principles, unifying concepts and facts of modern biology. Introduction to quantitative biological experimentation. For Biological Sciences, Allied Health Sciences and preprofessional majors.

BSC 1020C
Biological Principles: A study of various biological factors which affect the health and survival of man in modern society. Meets ESP requirements; designed for non-majors.

BSC 1030C
Biology and Environment: Biological implications of the interaction among human society, population, and
technology in relation to the environment and natural systems. Meets ESP requirements; designed for non-majors.

**BSC 4024**

**Biological Nature of Man:** PR: A course in biology. Analysis of animal structure, function, and behavior to explain human structure, function, behavior and evolution. Meets advanced ESP requirements; designed for non-majors.

**BSC 4034**

**Biology and Society:** Biological concepts applied to current human problems—food production, pollution, disease, extinction, and disrupted ecosystems. Meets advanced ESP requirements; designed for non-majors.

**BSC 4103**

**History of Biology:** PR: C. I. People and events involved in the development of major biological concepts and disciplines. Designed for majors and non-majors.

**BSC 5815**

**High School Biology Concepts:** PR: Rank III Certificate or C. I. Major concepts in BSCS biology and other modern biology programs.

**BSC 6406**

**Field Methods for Biology:** PR: Two years of biology. Experimental techniques and design in field biological research.

**BSC 6407C**

**Laboratory Methods for Biology:** PR: PCB 3023 or MCB 4404. Experimental techniques and design in laboratory biological research.

**BTE 1060**

**Introductory Typewriting:** For the student with no previous instruction in typewriting. Development of basic elements in using the typewriter as a tool of literacy and communications.

**BTE 1061**

**Typewriting Production I:** PR: BTE 1060 or equivalent. Development of skills in speed and accuracy and introduction to skill building procedures.

**BTE 1062**

**Typewriting Production II:** PR: BTE 1061 or equivalent. Expansion of communications production development, speed and accuracy.

**BTE 2063**

**Principles of Shorthand I:** PR: Concurrent enrollment in BTE 1060 or equivalent. For students with no previous instruction in shorthand. Introduction to basic theory of Gregg Shorthand, vocabulary development, and speed building.

**BTE 2064**

**Principles of Shorthand II:** PR: BTE 1061 or BTE 2063 or equivalents. A continuation in the study of shorthand theory, vocabulary development, and speed building.

**BTE 2065**

**Principles of Shorthand III:** PR: BTE 1061 and BTE 2064 or equivalents. Development and refinement of sustained shorthand dictation, speed and vocabulary.

**BTE 3151**

**Shorthand Dictation:** PR: BTE 1061 and BTE 2065 or equivalents. Continued development of shorthand dictation and introductory communications production.

**BTE 3152**

**Shorthand Transcriptions:** PR: BTE 1061 and BTE 3151. Gregg Shorthand dictation and refinement of communications production.

**BTE 3266**

**Office Technology:** PR: BTE 1061 or C. I. Basic operation and function of technological media in modern business offices.

**BTE 3391**

**Business Instructional Analysis I:** PR: EDF 3255 and EDF 3603. Techniques, materials, and instructional media; psychological principles, evaluation, and current trends in typewriting instruction.

**BTE 4265**

**Office Systems and Procedures:** PR: BTE 3152. Study of the responsibilities of the executive secretary and office supervisor; records management, travel services, case studies in human relations in executive level job performance.

**BTE 4392**

**Business Instructional Analysis II:** PR: EDF 3255 and EDF 3603. Techniques, materials, and instructional media; psychological principles, evaluation and current trends in shorthand and related instruction.
Business Instructional Analysis III: PR: EDF 3255 and EDF 3603. Techniques, materials, and instructional media; psychological principles, evaluation, and current trends in accounting and basic business instruction.

Business Education Curriculum: PR: Rank III Certificate or C.I. Curriculum planning and development; objectives; innovations, problems and issues in contemporary Business programs.

Research in Typing Instruction: PR: Rank III Certificate or C.I. Techniques, materials, and instructional media; psychological principles, evaluation, and research related to instruction in typing.

Evaluation and Research in Business Education: Rank III Certificate or C.I. A study of standardized and prognostic tests; functions, construction, administration, and evaluation of measurement instruments; research techniques for business education.

Shorthand Instructional Techniques: PR: Rank III Certificate or C.I. Techniques, materials, and instructional media; psychological principles, evaluation and research related to instruction in shorthand.

Office Simulation Techniques: PR: Rank III Certificate or C.I. Methods of office simulation for teachers at the developmental and performance levels.

Basic Business Teaching Techniques: PR: Rank III Certificate or C.I. Techniques, materials, and instructional media; psychological principles, evaluation and research related to instruction of basic business courses in high schools.

Practicum-Data Processing, Office Technology: PR: Rank III Certificate or C.I. Techniques, materials, and instructional media; evaluation, and new trends of instruction with special emphasis on data processing for teachers.

Practicum-Consumer Education: PR: Rank III Certificate or C.I. Consumer competencies and methods for teaching students intelligent consumption of goods and services in the free enterprise system.

Legal Environment of Business: The presentation of law as an expanding social and political institution in the environment of the business enterprise.


Business Law II: PR: BUL 3112 desirable. An examination of the law underlying the transfer and sale of goods, commercial paper and secured transactions including their interaction with the commercial environment.


Computer Fundamentals for Business Applications I: Hardware/software for business data processing; survey of business applications programs; study of prewritten programs (batch and interactive); writing programs in high level language.

Computer Fundamentals for Business Applications II: PR: CAP 3001 or equivalent. Introduction to computer programming for business applications using RPG or BASIC Languages.


Data Structures and Operating Systems for Business: PR: CAP 3002. Data set structures and relations to file activity. Operating system services, multiprogramming, accounting, background-foreground processing, overhead cost analysis.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCJ 4440</td>
<td>Corrections Administration: Organization, administration and operation of short and long term detention facilities or institutions including classification, treatment, security, supervision and prison sub-culture problems.</td>
<td>SS 4 (4,0) $</td>
</tr>
<tr>
<td>CCJ 4450</td>
<td>Justice Policy and Social Conflict: The effects of social conflicts and political decisions on the administration of justice, stressing the law enforcement role.</td>
<td>SS 4 (4,0) Su</td>
</tr>
<tr>
<td>CCJ 4470</td>
<td>Financial Administration and Budgeting: PR: C.I. Police budgets as instruments of policy making and management. Financial, fiscal, administrative and legal aspects.</td>
<td>SS 4 (4,0) $</td>
</tr>
<tr>
<td>CCJ 4481</td>
<td>Police and the Community: Police relationships with citizenry. Ethnic and social conflict in relation to law enforcement, and how police deal with groups, crowds, gangs, and nonconformist cultures.</td>
<td>SS 4 (4,0) F</td>
</tr>
<tr>
<td>CCJ 4540</td>
<td>Delinquency Control: Examination of programs and institutions including juvenile court process, intake services, and remedial procedures and practices.</td>
<td>SS 4 (4,0) W</td>
</tr>
<tr>
<td>CCJ 4630</td>
<td>Comparative Justice Systems: A survey of contemporary foreign criminal justice systems; differences emerging from various cultural and legal systems.</td>
<td>SS 4 (4,0) W</td>
</tr>
<tr>
<td>CCJ 4941</td>
<td>Criminal Justice Internship: PR: C.I. Internship in municipal, county, state, or federal criminal justice agency. Includes assignments in police, courts, corrections components.</td>
<td>SS 6-12 (0,20-40) F,W,S,Su</td>
</tr>
<tr>
<td>CDA 3151</td>
<td>Minicomputer Programming/Laboratory: PR: COP 3402. System and user defined macros, debugging techniques, introduction to an operating system, files, bootstrap leaders, tasking, diagnostic routines, introduction to microprogramming. Uses Variant 73 minicomputer.</td>
<td>NS 4 (3,2)</td>
</tr>
<tr>
<td>CDA 4102</td>
<td>Introduction to Computer Architecture: PR: CDA 3151, EEL 3341. Survey of machine instructions, processor characteristics, and microprogramming concepts.</td>
<td>NS 4 (4,0)</td>
</tr>
<tr>
<td>CDA 4161</td>
<td>Programming for Large Scale Digital Systems: PR: COP 3402, CDA 3151. Programming techniques and instruction sets for large scale digital computers.</td>
<td>NS 4 (4,0)</td>
</tr>
<tr>
<td>CDA 5106</td>
<td>Analysis of Computer Architecture: PR: CDA 4102. Analysis of computer systems organization: minicomputers, microprocessors, microcomputers, and large scale digital architectures are discussed.</td>
<td>NS 4 (4,0)</td>
</tr>
<tr>
<td>CDA 6107</td>
<td>Microprogrammed Computer Architectures: PR: CDA 5106. A continuation of CDA 5106 with an emphasis on microprogramming and processor design.</td>
<td>NS 4 (4,0)</td>
</tr>
<tr>
<td>CDA 6108</td>
<td>Computer Architecture, Design and Evaluation: PR: CDA 6107. Automated testing, fault tolerance, microprogrammed I/O, pipelining, cache memories, bit slice designs, computer hardware design languages, and performance measurement.</td>
<td>NS 4 (4,0)</td>
</tr>
<tr>
<td>CDA 6166</td>
<td>Computer-Based Communications Networks: PR: CDA 5106 and COP 5613. Functions of communications systems, communication system hardware, communication system organization and structure, examples.</td>
<td>NS 3 (3,0)</td>
</tr>
<tr>
<td>CES 4124</td>
<td>Structural Engineering Analysis: PR: EGN 3331. Analysis of statically indeterminant structures by flexibility and stiffness methods, and energy methods. Analysis of columns.</td>
<td>EN 4 (4,0)</td>
</tr>
<tr>
<td>CES 4144</td>
<td>Matrix Methods of Structural Analysis: PR: EGN 3331. Structural analysis of beams, frames, and plates by matrix methods.</td>
<td>EN 4 (4,0)</td>
</tr>
<tr>
<td>CES 4605</td>
<td>Structural Steel Design: PR: EGN 3331. Design of steel structural members. Selected topics in beam design, column design, plastic design, connections and built-up members.</td>
<td>EN 4 (4,0)</td>
</tr>
<tr>
<td>CES 4704</td>
<td>Structural Concrete Design: PR: EGN 3331. Principles of designing reinforced concrete members. Selected topics in concrete mixes, beams, columns, and ultimate analysis.</td>
<td>EN 4 (4,0)</td>
</tr>
<tr>
<td>CES 5102</td>
<td>Intermediate Mechanics of Materials: PR: EGN 3331 and MAP 3305. Elements of plane elasticity; failure theories; curved beams; columns; bending and torsion of thin-walled structures; theory of thin plates; applications to design.</td>
<td>EN 4 (4,0)</td>
</tr>
</tbody>
</table>
CES 5107
Matrix Structural Analysis: PR: CES 4144 or equivalent. Optimization and matrix methods applied to the design of real structures.

CES 5608
Structural Engineering Design: PR: CES 4124, CES 4605, and 4704. Project course on design of steel and concrete structures.

CES 5120

CES 6209

CES 6218

CES 6606
Steel Design: PR: CES 4605 or equivalent. Design of complete steel structures to include economics, plastic design and real building examples.

CES 6707
Concrete Design: PR: CES 4704 or equivalent. Design of concrete structures to include economics, slabs, prestressed concrete, and real building examples.

CHM 1034
General Chemistry: An introductory study of the fundamental concepts of chemistry, oriented toward AHS and Biology Education majors.

CHM 2045
Chemistry Fundamentals I: PR: High School Chemistry or CHM 1034. Basic physical theory of chemical reactivity, atomic structure, chemical bonding, periodicity, stoichiometry, equilibria, thermodynamics, and kinetics.

CHM 2046
Chemistry Fundamentals II: PR: CHM 2045. Continuation of CHM 2045.

CHM 2046L
Chemistry Fundamentals Laboratory: PR: CHM 1034 or CR: CHM 2046. Illustration chemical principles and introduction to the techniques of inorganic and physical chemistry.

CHM 2047

CHM 2120C

CHM 2200
Introductory Organic Chemistry: PR: CHM 1034 or CHM 2047. A survey of organic chemistry stressing its applications to our society. The chemistry of functional groups will be related to industrial and natural processes.

CHM 2205 L

CHM 3121C

CHM 3122C
Analytical Chemistry II: PR: CHM 3121. Continuation of CHM 3121.

CHM 3210

CHM 3211

CHM 3211L
Organic Laboratory Techniques I: PR: CHM 3210. An introduction to the laboratory techniques of organic chemistry including the preparation, reaction, and analysis of organic compounds.
CHM 3212: PR: CHM 3211. Continuation of CHM 3211.

CHM 3212L: PR: CHM 3211 and CHM 3211L. Open-end laboratory to develop synthesis, techniques and structure elucidation skills.

CHM 3410: PR: CHM 3412, PHY 2041, and MAC 3312. Rigorous treatment of atomic and molecular structure, thermodynamics, kinetics, and chemical bonding.

CHM 3411: PR: CHM 3410. Continuation of CHM 3410.

CHM 3411L: PR: CHM 3211 and CHM 3410. Classical as well as modern instrumental techniques coupled with computer data processing to measure physical properties and determine atomic and molecular parameters.

CHM 3412: PR: CHM 3411. Continuation of CHM 3411.

CHM 3412L: PR: CHM 3411 and CHM 3411L. Continuation of CHM 3411.

CHM 4020: PR: CHM 3411. Continuation of CHM 3411. Continuation of CHM 3411.

CHEMISTRY IN SOCIETY: PR: CHM 3411. A discussion of descriptive inorganic chemistry based on various bonding theories, thermodynamics, and kinetics.

Advanced Analytical Laboratory Technique: PR: CHM 3122, 3121, and 3412. A lecture-laboratory course designed to give in-depth coverage to modern methods of analysis including electrochemistry, spectroscopy, and separation techniques.

Analytical Methods Development: PR: CHM 3121. A lecture-laboratory course in which students propose and evaluate procedures for inorganic and organic analyses.


Advanced Organic Chemistry II: PR: CHM 3212 and CR: CHM 3410. A study of class reactions from a mechanistic and synthetic viewpoint and including recent and developing areas of importance.


Chemical Structure: PR: CHM 3212, 3121, and 3412; or equivalent. Concepts in molecular structure and the relationships between structure and the chemical and physical properties of a substance.

Introduction to Forensic Science: Intended for nonmajors to provide an appreciation for the ways in which serves the civil and criminal justice system.

Criminalistics I: PR: CHM 2047 or C.I. Examination and evaluation of evidence obtained from suspect criminal actions, including the microscopy of trace evidence.

Criminalistics II: PR: CHS 3511. Continuation of CHS 3511.

Criminalistics: PR: CHS 3511. Examination and evaluation of evidence from civil actions involving water and air pollution, public safety, and product design.

Forensic Analysis Techniques: PR: CHM 3121. Study of separation, purification, quantitative, and instrumental techniques in drug and narcotic analysis toxicology, blood factor, and enzyme identification.
Nuclear and Radiochemistry: PR: CHM 3121 and CR: CHM 3411. A lecture-laboratory course examining theories of fundamental particles, the chemical effects of nuclear transformations and the special uses of isotopes.

Concepts in Industrial Chemistry: PR: CHM 3410. An introduction to industrial practices emphasizing the application of chemical principles in the development of a commercial process or product.

Forensic Science Internship: PR: C.I. Credit for full-time work (10-12 Weeks) in a professional forensic laboratory. This course may be repeated for credit.

Chemical Structure II: PR: CHS 5200. Continuation of CHS 5200.


Chemical Dynamics I: PR: CHM 3412 or equivalent. Dynamics of chemical reactions and physical processes including equilibrium systems catalysis, transport processes and physical phenomena at interfaces.

Chemical Dynamics II: PR: CHS 5240. Continuation of CHS 5240.

Chemical Dynamics III: PR: CHS 5241. Continuation of CHS 5241.

Chemicals Synthesis I: PR: CHM 3212, 3211, and 3412; or equivalent. Survey of chemical synthesis from the standpoint of planning a synthesis, intermediates, special techniques, protection of functional groups, experimental design and optimization of reaction conditions.

Chemical Synthesis II: PR: CHS 5250. Continuation of CHM 5250.

Chemical Synthesis III: PR: CHS 5251. Continuation of CHM 5251.

Separation Process: PR: CHM 3211 and CHM 3412; or equivalent. A study of the basic operations utilized in separation processes. Topics will include distillation, azeotropic distillation, solvent extraction, absorption, crystallization, filtration and ion exchange.

Chemical Processes: PR: CHS 6260 or equivalent. Case study approach which reviews strategy in the development of selected chemical processes.

Process Kinetics and Control: PR: CHM 3122 and CHS 6261; or equivalent. A case study approach analyzing kinetic data and techniques used in the design of reactors and process control systems.

Chemical Process Economics: PR: C.I. Consideration of the various cost factors involved in economics of a chemical process and methods used in evaluating relative economics of various processes.


Information and File Systems Analysis: PR: COP 4530 or equivalent. Logical and physical information system design. Analysis of file systems. Introduction to data base management systems.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>NS 4 (4,0)</td>
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<tr>
<td>CIS 6124</td>
<td>Data Base Management Systems Theory</td>
<td>PR: CIS 6122. Theory of data models, data languages and data base management systems.</td>
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<tr>
<td>NS 4 (4,0)</td>
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<tr>
<td>CLP 3003</td>
<td>Psychology of Adjustment</td>
<td>Psychological principles of adjustment; application of psychology to problems in living.</td>
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<tr>
<td>SS 4 (4,0)</td>
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<td>SS 4 (4,0)</td>
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<tr>
<td>CLP 3302</td>
<td>Clinical Psychology</td>
<td>PR: PPE 3003 and CLP 3143. Consideration of psycho-diagnostics, behavioral modification techniques and clinical research. Lec.-Lab.</td>
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<tr>
<td>SS 4 (4,0)</td>
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<td>SS 5 (2,3)</td>
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<tr>
<td>CLP 6187</td>
<td>Problems in Mental Health</td>
<td>PR: Graduate admission and C.I. An investigation of some of the major problems facing psychologists working in Mental Health clinics.</td>
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<td>SS 4 (4,0)</td>
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<td>SS 4 (2,2)</td>
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<tr>
<td>CLP 6437</td>
<td>Implementation and Evaluation</td>
<td>PR: Graduate admission and C.I. Strategies and procedures for evaluating programs in community and school settings.</td>
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<td>SS 4 (4,0)</td>
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<tr>
<td>CLP 6441</td>
<td>Individual Intelligence Testing</td>
<td>PR: Graduate admission, and C.I. Commonly used individual tests to measure intelligence of both children and adults.</td>
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<td>SS 4 (4,0) F</td>
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<tr>
<td>CLP 6445</td>
<td>Personality Testing</td>
<td>PR: Graduate admission, and C.I. Survey of commonly used individual and group personality techniques.</td>
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<td>SS 4 (4,0) W</td>
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<tr>
<td>CLP 6456</td>
<td>Clinical Intervention I</td>
<td>PR: Graduate admission and C.I. Various theories of counseling and their evaluated efficiency, including the problems of research in counseling techniques.</td>
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<tr>
<td>SS 4 (4,0)</td>
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<tr>
<td>CLP 6457</td>
<td>Clinical Intervention II</td>
<td>PR: Graduate admission and C.I. Introduction to the principles and procedures of behavior modification as a clinical intervention technique.</td>
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<td>SS 4 (4,0) S</td>
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<tr>
<td>CLP 6458</td>
<td>Clinical Intervention III</td>
<td>PR: Graduate admission, and C.I. Group and family counseling. Experimental group lab. Taught in conjunction with PSY 6946.</td>
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<td>SS 4 (3,2) W</td>
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<tr>
<td>CLP 6459</td>
<td>Clinical Intervention IV</td>
<td>PR: CLP 6441, 6445, 6456, 6457, 6458, EPP 6108 and C.I. Dynamic psychotherapy; integration of various psychological assessment devices; relationship of evaluation to therapy.</td>
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<td>SS 4 (3,2)</td>
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<td>NS 4 (4,0)</td>
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<tr>
<td>CNM 5142</td>
<td>Computational Methods/Linear Systems</td>
<td>PR: MTG 4302 or MAS 3113. Mathematical models for linear systems, linear programming, the simplex method, integer and mixed-integer programming, introduction to nonlinear optimization and linearization.</td>
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<tr>
<td>NS 4 (4,0)</td>
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<tr>
<td>CNM 6144</td>
<td>Computational Methods/Analysis I</td>
<td>PR: CNM 5142. Analysis of direct and iterative solutions of systems of linear equations, eigenvalues and vectors and roots of nonlinear equations, error analysis.</td>
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<td>NS 4 (4,0)</td>
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<td>NS 4 (4,0)</td>
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COC 1100 NS 4 (4,0) F,W,S
Introduction to Computer Science: History, typical computer, number systems, control and data flow, peripheral components, memory devices, effects of computers on society, applications of computers.

COM 1000 SS 4 (4,0) F,W,S,Su
Basic Communication: Survey of basic factors affecting human interaction through communication; theories and models of communication; contributions of behavioral sciences and related arts; mass media in society.

COM 3110 SS 4 (4,0) F,W,S,Su
Business and Professional Communication: PR: SPC 1014 or C.I. Theoretical and practical training in effective presentational speaking for business and professions.

COM 3120 SS 4 (4,0) F,S
Organizational Communication: A study of communication functions and problems within the contexts of hierarchies.

COM 3311 SS 4 (4,0)F,W,S,Su
Communication as a Behavioral Science: Basic principles of the behavioral science approach to the study of contemporary communication.

COM 4020 SS 4 (4,0)
Informational Communication: An examination of available communication systems (non-technical) and their utilization within business, educational, entertainment, industrial, medical, and military organization.

COM 4941 SS 1 (1,1) W
Practicum in Communication: PR C.I. May be repeated three times for credit.

COM 6121 SS 4 (4,0)
Communications Management: PR: C.I. Analysis and development, with reference to particular media. Organizational theory, structure and behavior: Management principles and operations.

COM 6314 SS 4 (4,0)
Audience Measurement: PR: C.I. Examination and review of audience measurement techniques. Individuals assignments for compilation and analysis of measurement data.

COM 6426 SS 4 (4,0) W
Information and Educational Systems: PR: C.I. Sources, processing and transmittal of educational and informational materials (software) used in educational broadcast systems, information retrieval systems, learning machines, etc.

COP 1110 NS 3 (3,0)F,W,S
Computer Programming: PR: College Algebra and Trigonometry or equivalent. Problem definitions, algorithms, flow charts, digital computer programming using a higher level language (FORTRAN).

COP 2510 NS 3 (3,0) F,W,S
Programming I: PR: College Algebra and College Trigonometry. Algorithm concepts; basic programming concepts and techniques. flow of control, character handling, data techniques; programming style; computer experienced in a procedure-oriented language (PL/1).

COP 2511 NS 3 (3,0) F,W,S
Programming II: PR: COP 2510. Continuation of basic programming concepts, arrays, procedures, structures, recursion, storage; sorting and searching algorithms; continued computer experience in a procedure-oriented language (PL/1).

COP 3120 NS 3 (3,0) F,S
Cobol I: PR: At least one programming course or equivalent experience. Basic COBOL programming, preparation of business reports, laboratory projects.

COP 3121 NS 3 (3,0) W
Cobol II: PR: COP 3120. Processing sequential, indexed and random files; advanced topics system utility programs and laboratory projects.

COP 3215 NS 3 (3,0)

COP 3402 NS 4 (3,3)
Assembly Language Programming: PR: COP 2511 or equivalent programming experience. Computer structure, data representation, addressing schemes, looping techniques, subroutines, direct input/output, assembly language programming, basic assembler organization. Uses Varian 73 minicomputer.

COP 3515 NS 3 (3,0)
Structured Programming: PR: COP 2511 or equivalent. Concepts of structured programming; files structure; advanced features of PL/1; programming in an interactive mode.

COP 4530 NS 4 (4,0)
Data Structures: PR: COP 3402 and COP 3515. Basic concepts of data; linear lists, strings, arrays, and orthogonal lists; ordering or sorting techniques; recursion; string and list processing languages.
COP 4550
Programming Languages I: PR: COP 4530. Features of high-level programming languages; introduction to compiling and interpreting techniques; SNOBOL and LISP.

COP 4620
Programming Systems: PR: CDA 3151 and COP 4530. The function and organization of operating systems. Design and implementation considerations regarding operating systems, compilers, assemblers and loaders.

COP 5554
Programming Languages II: PR: COP 4550 or equivalent. A formal study of programming language design and specification. BNF grammars, models of semantics, compilers and interpreters.

COP 5613
Operating System Design Principles: PR: COP 4620 or equivalent. The structure and functions of operating systems, process communication techniques, scheduling algorithms, deadlocks, memory management, virtual systems, protection and security.

COP 6555
Philosophy of Programming/Languages: PR: COP 5551 or equivalent. Basic principles of software physics including program level, effort, impurity classes and execution. Language comparison project using tools of software physics: semantic characterization of languages.

COP 6614

COP 6615

COP 6642
Introduction to the Theory of Translation: PR: COP 5551. Language theory, the theory of translation and parsing, finite automata and pushdown acceptors.

COP 6643
Compiler Construction: PR: COP 6642. Techniques in the design and implementation of compilers. A project is required.

COT 4001
Discrete Computational Structures: PR: COP 2511, MAC 3313. Finite and discrete mathematical structures relating to the theory of computing, graphs, monoids, lattices, Boolean algebras; various models for algorithmic processes, finite automata, Turing machines.

CPO 3034
Politics of Developing Areas: An analysis of non-Western political systems with emphasis upon the problems of political, socio-economic, and cultural development.

CPO 3103
Comparative Politics: An analytical and comparative study of politics in other nations with emphasis upon the relationships of social environments and political systems.

CPO 3502
Comparative Asian Politics: Selected Asian political systems will be examined in terms of the interaction between political institutions and processes and social, cultural and economic structures.

CPO 4024
Non-Western Politics: Examination of the political system of one or two non-Western nations, including the relationship of socio-cultural and historical environment to the political system.

CPO 4123
Government and Politics of Great Britain: A survey of British government, society, and institutions, with emphasis on the development of parliamentary democracy.

CPO 4543
Government and Politics of the Soviet Union: Examination of the origins, institutions, and functioning of the Soviet political system, including the role and characteristics of the communist party of the Soviet Union.

CRM 6115
Economics of Computers: PR: CIS 5012. The computer industry, terms and conditions of sale and rental, cost and effectiveness of computer systems. Determining value, demand and price of computer services.

CRM 6131
Managing the Computer Professional: PR: CIS 5012 and MAN 5051; or C.I. The programming group, team and project tasks, personality factors, motivating, training, experience.

CRW 2020
Principles of Creative Writing: An exploratory course in the several types of creative writing; group analysis of original writing; critical reading of established authors.
**CRW 2221**  
*Introduction to Fiction Writing:* Practice in writing the short story; group analysis and criticism of work produced by individual students.  

**CRW 2321**  
*Introduction to Verse Writing:* Practice in writing poetry; group analysis and criticism of work produced by individual students.  

**CRW 3132**  
*Creative Writing Workshop I:* PR: C.I. Practice in established forms: essay, short story, and poetry.  

**CRW 3140**  
*Creative Writing Workshop II:* PR: CRW 3132 or C.I. Individualized practice in writing in one of the established forms: analytic study of the work of pertinent authors.  

**CRW 3152**  
*Creative Writing Workshop III:* PR: CRW 3142 or C.I. Individualized practice in writing in one of the established forms: analytic study of the work of pertinent authors.  

**CRW 3530**  
*Writing for Children:* Practice in writing publishable literature for pre-school and elementary level children.  

**CRW 4940**  
*Writing Practicum I:* PR: C.I. Intensive writing practice in fiction, non-fiction, or verse.  

**CRW 4941**  
*Writing Practicum II:* PR: CRW 4940. Continuation of CRW 4940.  

**CRW 4942**  
*Writing Practicum III:* PR: CRW 4941. Continuation of CRW 4941.  

**CYP 6948**  
*Community Psychology Internship:* PR: Graduate admission, 2nd year status and C.I. Supervised placement in community setting. (May be repeated for credit).  

**DAA 3160**  
*Movement as an Art Form:* PR: PEM 3153C or equivalent competency. Analysis of creative movement techniques which increase body awareness and enhance the communicative potential the instrument of dance.  

**DAA 3700**  
*Choreography of Contemporary Dance (W):* PR: Sophomore standing. Dance production as an art form.  

**DAA 6050**  
*Rhythms:* PR: Rank III Certificate or C.I. Instructional analysis in classical and modern rhythms.  

**DAE 3301**  
*Instructional Analysis of Rhythms:* PR: Sophomore standing. Analysis of rhythm and rhythmic activities as they relate to teaching physical education.  

**DEP 3004**  

**DEP 3202**  
*Psychology of Exceptional Children:* Psychological problems of exceptional children including diagnosis, associated emotional problems, effects of institutionalization, special class placement, attitudes, and appropriate intervention methods.  

**DEP 3212**  
*Psychological Approaches to Mental Retardation:* The problems of mentally retarded citizens including diagnosis, environment versus heredity, legal restrictions, institutionalization, as well as methods of behavioral remediation.  

**DEP 6057**  
*Development Psychology:* PR: Graduate admission and C.I. Psychological aspects of development including intellectual, social and personality factors.  

**DEP 6215**  
*Mental Retardation:* PR: Graduate admission, and C.I. Theory, research and remedial techniques dealing with mental retardation.  

**DHE 4101**  
*Population:* Concerned with the study of human population, its distribution, composition and change.  

**DHE 4300**  
EAB 3703  
Principles of Behavior Modification: PR: EXP 3404. An examination of the control of behavior through applications of principles and theories of learning. Examples are drawn from clinical and social psychology and from child rearing.

EAB 3704  

EAS 4101  
Aerodynamics: PR: EGN 3353. Subsonic and supersonic flight; airfoils in compressible and incompressible flow; flow about a body; thin airfoil and finite airfoil theory.

EAS 4300  

EAS 5114  
Aerodynamics: PR: EAS 4101 or equivalent. Advanced aerodynamics principles including fluid dynamics, potential flow theory, airfoil and finite wing theory.

EAS 6123  
Aerodynamics: PR: EAS 4101 or equivalent. Theoretical methods useful for predicting performance and stability of thin lifting surfaces and slender vehicles at subsonic, supersonic and hypersonic speeds.

EAS 6400  

ECI 3404  

ECI 3504  
Surveying: CR: Junior Standing. Theory and field practice in surveying measurements, and the reduction and adjustment of field data.

ECI 3603  
Engineering and Environmental Geology: Principles of physical geology with emphasis on engineering and environmental topics. Study of land forms, geologic maps, geologic structure, weathering, groundwater, mass wasting, and earthquakes.

ECI 4145  
Construction Methods: PR: C.I. Factors, methods, planning, and equipment related to civil engineering construction.

ECI 4305  

ECI 4305L  
Geotechnical Engineering Laboratory: PR: ECI 4305 or C.I. Fundamental geotechnical engineering experiments, classification, grain size, atterberg limits, compaction, etc.

ECI 5215  
Hydraulic Engineering: PR: EGN 3353. Application of principles of fluid mechanics to engineering design problems. Open channel flow, conduits, hydraulic machinery, reservoir planning, and other hydraulic works.

ECI 5215L  
Hydraulic Engineering Laboratory: CR: ECI 5215. Environmental and civil engineering hydraulics applications. Pipe and open channel flow, fittings, flow measurements, etc.

ECI 5306  
Geotechnical Engineering II: PR: ECI 4305. Continuation of ECI 4305 with emphasis on shear strength and design factors for earth pressures, bearing capacity, and slope stability.

ECI 6197  
Public Works Engineering: PR: C.I. Principles and practices, operation and maintenance, equipment, utilities, planning and design, etc.

ECI 6198  
Regional Planning, Design, and Development: PR: TTE 6607. Project course dealing with planning, design, and development of regional systems, including projections, case studies, design alternatives, environmental impact, etc.

ECI 6324  
Foundation Analysis and Design I: Analysis and design of fundamental foundation units including spread footings, combined footings, mats, and retaining walls.
ECI 6325

Foundational and Design II: Continuation of topics in ECI 6324 including sheet piles and pile foundations.

ECI 6608

Advanced Topics in Engineering Geology: PR: C.I. Geologic aspects of major civil engineering works including dams, reservoirs, urban development, transportation systems, etc.

ECI 6617

Groundwater and Seepage: Theories of groundwater movement, geological factors, analysis and design technique, etc. Emphasis on practical considerations.

ECM 4104

Mathematics Review for Engineers: Comprehensive review of college algebra trigonometry, analytical geometry, vector calculus, and an introduction to differential equations for non-current engineering students wishing to pursue advanced work.

ECM 4114

Engineering Mathematical Analysis: PR: MAC 3314 and MAP 3305. The application of mathematical methods to engineering problems including vector and tensor fields, state space techniques, orthogonal curvilinear coordinates and orthogonal functions.

ECM 4124


ECM 4134


ECM 4304

Digital Systems Hardware Organization: PR: ECM 4504. Analysis and design of computer subsystems and digital controllers in AHPL using techniques ranging from logic to micro programming.

ECM 4504

Mini-Computers in Engineering Systems: PR: COP 3215 or equivalents. EEL 4342 or EEL 3341. Organization of the computer, processor, memory and I/O. Assembly level programming. Input-output using programmed transfer and interrupt type I/O. NOVA mini-computer orientation.

ECM 4804


ECM 4814

Real Time Mini-Computer Systems: PR: EGN 3703 and ECM 4504. Computer I/O Systems and equipment, Sampling, quantization, buffering and real time processing. Use of the NOVA mini-computer system for data acquisition, display and control.

ECM 5135

Analytical Methods in Engineering: PR: ECM 4114 or C.I. The kinematics and dynamics of ideal field theory. Complex potential and conformal mapping with application to problems in fluid flow, thermal, and electrical potential.

ECM 5235


ECM 5505C

Microcomputer Application in Engineering: PR: ECM 4504 or C.I. Introduction to design and application of microcomputer-based monitoring and control systems: machine language programming; software development aids.

ECM 5506C


ECM 5705

Engineering Data Reduction: PR: STA 3032. Methods for processing and analysis of scientific test and process data, including computer filtering schemes and data compression and recovery techniques.

ECM 6416

ECM 6426 Continuous System Simulation: PR: EGN 3703 or equivalent. Use of state-space techniques, numerical integration, and CSSL programs. Laboratory assignments.

ECM 6436 Automata Theory: PR: EEL 4342 or equivalent. Structural theory and performance characteristics of the finite-state machines.

ECM 6606 Hybrid Computer Systems: PR: ECM 4114 or C.I. Analysis and design of Hybrid Systems and components. Applications of hybrid systems to problems in optimization theory, control, man-machine systems, and biological systems.

ECM 6706 Engineering Data Reduction: PR: ECM 5705. Digital analysis of multidimensional data. Applications of multidimensional orthogonal transforms.

ECM 6805C Microcomputer Applications Design: PR: ECM 5505C or C.I. Advanced applications of microcomputer systems. Design of systems and software to implement a case study in microcomputer usage.


ECO 2023 Principles of Microeconomics: The determination of prices in a market economy; their role in allocating consumer and producer goods in distributing incomes. Efficiency of markets and evaluation of public policies designed to improve efficiency.

ECO 3101 Intermediate Price Theory: PR: ECO 2023 and 2013. Theoretical analysis of the determination of product and factor prices under different market structures.


ECO 4225 Monetary Theory and Policy: PR: FIN 3233. A study of the factors that influence the supply of and demand for money and credit, and the effect of changes in these factors on the allocation of resources, levels of national income, employment, and prices.


ECO 4503 Public Finance in the American Economy: PR: ECO 2013. Analysis of fiscal institutions and decision-making in the public sector of the American economy; budget planning and execution, taxation, debt; and theory of taxes.

ECO 5055 Economic Concepts: PR: Acceptance into the graduate program. Introduction to micro and macro economic analysis.


ECO 5413 Statistical for Business and Economics: PR: Acceptance into the graduate program. Statistical theory and
problems relating to business and economics including time series and correlation theory, index number theory and statistical interference.

ECO 5423 Econometric Methods: PR: Graduate standing and ECO 3411 or equivalent. The application of econometric methods to economic theory and problems. Emphasis is placed on the validation of a model.

ECO 6111 Economic Analysis of the Firm: PR: Graduate Standing and ECO 5055 or equivalent. Commodity price and output determination; factor price determination and functional income distribution; analysis of different types of markets.

ECO 6204 Aggregate Economics-Income, Unemployment and Growth: PR: Graduate standing and ECO 5055 or equivalent. Macroeconomic measurement, theory and policy, for the student with a limited economic background.

ECO 6206 Business Cycles and Forecasting: PR: ECO 5055 or equivalent. Use of economic tools for measuring changes in aggregate economic activity, changes in production and prices, and the use of statistical techniques.

ECO 6226 Money, Banking and Economic Activity: PR: Graduate Standing. A study of the institutions in which the money supply is generated and the influence of monetary policy on economic stability and growth.

ECO 6227 Monetary Theory and Policy: PR: Graduate standing and a course in Money and Banking. An analysis of the fundamental theory underlying the supply of money, demand for money and effects of monetary variables of the level of economic activity.

ECO 6305 History of Economic Thought: PR: Graduate standing. The history and development of Pre-Keynesian economic doctrines with emphasis on classical and post-classical economic thought.

ECO 6415 Statistical Models for Business: PR: Graduate Standing and ECO 5413 or equivalent. The theory of model analysis including validation of model assumptions through Monte Carlo analysis and advanced statistical techniques.

ECO 6416 Econometrics: PR: ECO 5055/ECO 5413 or equivalent. The mathematical formulation of economic theories and the use of statistical procedures to measure the theoretical relationships and to verify or reject the theories.

ECO 6505 Public Finance and Financial Policy: PR: Graduate Standing and ECO 5055 or equivalent. Analysis of the fiscal role and instruments of government and their effects on the economy; taxation, debt, and fiscal policy.

ECO 6705 International Trade: PR: Graduate standing. An inquiry into the theory of international trade, commercial policy and economic integration.

ECO 6715 Theory of International Finance and Monetary Institutions: PR: Graduate standing. Analysis of the international money market, international equilibrium and adjustment mechanism, exchange rate variations, balance of payments, capital flow, and effects of international monetary policies.

ECP 3103 Manpower and Human Resources: PR: ECO 2023 and ECI 2013. Examines labor as a human resource or human capital. Special emphasis placed upon the changing role of manpower and manpower policies.


ECP 3423 Economics of Public Utilities: PR: ACC 2304, ACC 2324 and ACC 3003, and ECO 2013 or C.I. The nature of public utilities, the economics of rate determination, and regulatory policy.

ECP 3433 Transportation Economics: PR: ECO 2023, and ECO 2013. Economic characteristics and governmental regulation of public carriers. Consideration of competitive relations between modes of transportation and criteria for public investment in transportation and criteria of public investment in transportation systems.


ECP 4703 Managerial Economics: PR: Junior Standing, ACC 2324, ECO 2023, ECO 2013 and ECO 3411. The uses of economic analysis in economic decisionmaking and business policy formulation.
Economics of Urban Areas: PR: ECO 2013. Economic problems arising from and associated with the growth of cities and suburban areas.  

Labor Economics: PR: Graduate Standing and ECO 5055 or equivalent. An investigation into the nature and function of the labor markets, with specific concern for both institutional and non-institutional imbalance.  

Environmental Economic Analysis: PR: Graduate standing. An investigation of environmental problems, policies of protection and difficulties in making quantitative assessments of environmental damages.  

Industrial Organization and Performance: PR: Graduate standing. A study of the performance of industries representative of various types of market structures and practices, relative to price and efficiency.  

The Economics of Regulated Industries: PR: Graduate standing. Economic, legal, and administrative concepts of regulation with emphasis on goals, tasks, phases, and procedures of regulation pertaining to transportation, electric, gas, and communicative systems.  

Managerial Economics: PR: Graduate Standing and ECO 5055 or equivalent. The use of economic tools and methods of reasoning applied to a wide range of business and economic problems.  


The Economics of Central Planning: PR: Graduate standing. An analysis of the economics of planning as applied to the economy of the Soviet Union and Soviet type centrally planned economic systems.  

Economic Development: PR: Graduate standing. Analysis of theories and problems of growth and development with special attention to resource scarcity, population growth, and interaction of foreign trade and internal development.  

Organization and Administration of Schools: PR: Rank III Certification or C.I. School organizational patterns kindergarten through junior college. Study of functions such as scheduling, staffing, community relations, design and operation of facilities, financial management.  

Legal Aspects of School Operation: PR: Rank III Certificate or C.I. Study of state and federal laws affecting the operation of public schools emphasizing individual rights and responsibilities of students, faculty, and administrators.  

Educational Financial Affairs: PR: Rank III Certificate or C.I. Theoretical and practical approaches to managing school business affairs at Central Office and individual school levels.  


Organization and Administration of Instructional Programs: PR: Rank III Certificate or C.I. Purpose and functions of school learning centers, curricula, media, and establishment of educational priorities, review and analysis of various grouping patterns for individualizing instruction.  

Elementary School Curriculum: PR: Admission to Phase III or C.I. Basic scope and sequence of the elementary school curriculum; personnel, and services; philosophical concepts; planning for instruction.  

Teaching Strategies in the Elementary School: PR: EDF 3603 or C.I. Study of selected teaching strategies and teaching skills, including effective utilization of audio-visual media, Individualizing instruction, pupil motivation and management. Concurrent teaching laboratory experiences.  

Elementary School Student Teaching—Block A: PR: EDF 3255 and EDF 3603. Junior year student teaching in an elementary school under the supervision of a certified classroom teacher.

Elementary School Student Teaching—Block B: PR: EDE 3942. Junior year student teaching in an elementary school under the supervision of a certified classroom teacher.


Elementary School Student Teaching—Block C: PR: EDE 3943. Senior year student teaching in an elementary school under the supervision of a certified classroom teacher.

Individualizing Instruction in the Elementary School: PR: Rank III Certificate or C.I. Study of basic philosophy, organizational patterns, techniques, materials, and activities related to individualizing instruction in the elementary school classroom.

Elementary School Curriculum: PR: Rank III Certificate or C.I. Analysis of the forces which shape and contribute to the vertical and horizontal curriculum designs of elementary schools.

Classroom Development and Learning: PR: One psychology course or C.I. Interdisciplinary approach focusing on relationship of classroom activities to principles of development and learning.

Classroom Management and Learning: PR: One psychology course of C.I. Analysis of techniques and skills for effective classroom management and discipline.

Teaching Analysis: Initial requirement; an opportunity to examine and participate in general and specific dimensions of teaching with socio-economics factors emphasized. EDF 3255 recommended concurrently.

Overview of Education: Study of public education in the United States focusing on the development of structure and process in the educational enterprise.


Adolescent Development and the Schools: PR: Rank III Certificate or C.I. Recent research in human development in adolescence with special emphasis upon research of interest to secondary school teachers.

Analysis of Classroom Teaching: PR: EDF 6480, or Rank III Certificate or C.I. Analyses of verbal and non-verbal behaviors of teachers and their effect upon classroom instruction and learning.


EDF 6432 Measurement and Evaluation in Education: PR: EDF 6480, Rank III Certificate or C.I. Rationale and construction of evaluative instruments, including classroom tests. Analysis of standardized and non-standardized tests in the classroom.

EDF 6520 History of Education: PR: Graduate Standing Evolution of education practices from the Greeks to the moderns, including both Eastern and Western cultural variables.

EDF 6557 Philosophical Foundations of Classroom Learning: PR: EDF 6480 or Rank III Certificate or C.I. A systematic approach to the philosophical bases of learning and the effect such philosophies have on school programs and curriculum.


EDG 3032C Humanistic Aspects to School Programs: PR: Successful completion of Phase I or C.I. Study of General Applications of the Humanistic viewpoint to school programs.

EDG 4938 Student Teaching Seminar: PR: Admission to Phase III. Seminar taken concurrently with student teaching exploring class management, aspects of professional and personal development, and current school problems and possible solutions.

EDG 4941 Direct Field Experience: PR: Approval of Professional Laboratory Chairman. Field experience in an appropriate educational setting under the direction of a supervising teacher and/or university supervisor.

EDG 6337 Techniques of Game Use in Education: PR: Rank III Certificate or C.I. Analysis, development, and use of educational games as an approach to classroom teaching.

EDG 6691 Research Utilizing Problem Solving: PR: Rank III Certificate or C.I. The identification and diagnosis of classroom and/or school building problems. Action plans are formulated to resolve these problems and to evaluate action taken.

EDG 6940 Internship: PR: Approval of Professional Laboratory Chairman. Internship in an appropriate educational setting under the direction of a qualified supervisor.

EDH 6302 Teaching and Training Evaluation: PR: Graduate admission and C.I. Evaluation of effective teaching methods and practicum experience.

EDM 5005 Middle School in Action: PR: Rank III Certificate or C.I. Supervised experiences designed to develop.


EDP 6108 Psycho-educational Diagnosis: PR: Graduate admission and C.I. Interpretation of psychoeducational tests. Emphasis on evaluation of exceptional children.

EDP 6347 Learning Disabilities: PR: Graduate admission and C.I. Theory, research and remedial techniques dealing with learning disabilities and other factors interfering with learning such as motivation, language disorders and perceptual-motor deficits.

EDS 5356 Supervision of Professional Laboratory Experiences: PR: C.I. Study of the undergraduate professional laboratory experiences program with emphasis on the role and responsibilities of the Teacher Education Associate or Supervising Teacher.

EDS 6123 Educational Supervisory Functions: PR: Rank III Certificate or C.I. Analysis of school supervisory functions in human relations, leadership, personnel administration, and in-service education for instructional improvement.

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EDS 6130  
**Educational Supervisory Techniques:** PR: Rank III Certificate or C.I. and EDS 6123. Development of techniques in observation, group processes, communication, and evaluation for assessment of school personnel and programs.

EED 4203  
**Principles and Programming in Early Childhood Education:** PR: C.I. Consideration of basic concepts, goals and principles underlying program planning; trends in research and development. Concurrent laboratory experiences.

EED 4204  
**Curriculum in Early Childhood Education:** PR: C.I. Exploration of early childhood curriculum; organizing for instruction; selection of appropriate objectives and activities in developing a balanced program. Concurrent laboratory experiences.

EED 4303  
**Creativity in Nursery-Kindergarten Education:** PR: C.I. Using art and music activities in the early childhood education program to develop individual creativity.

EED 5205  
**Programs in Early Childhood Education:** PR: Rank III Certificate or C.I. Philosophy, content, facilities, instructional materials, and activities appropriate for children ages 3, 4 and 5; current research; new curricula. Concurrent laboratory experiences.

EED 5301  
**Organization of Instruction in Early Childhood Education:** PR: Rank III Certificate or C.I. Organization in instruction and techniques in areas relating to language arts, social sciences, science, mathematics, health and physical education; problems relating to reading readiness, perception and cognition. Concurrent laboratory experiences.

EED 6932  
**Seminar in Early Childhood Education:** PR: Rank III Certificate or C.I. Study and evaluation of research applicable to the design and construction of a curriculum for 3, 4 and 5 year old children.

EED 6071  
**Behavior Disorders in Schools:** PR: Rank III Certificate or C.I. Assessment/analysis of behavior disorders, cause and effects, identification, and theories.

EED 6215  
**Development of a Personalized Program for Children with Behavior Disorders:** PR: Rank III Certificate or C.I. Study of various approaches to use in teaching children with behavior disorders, including precision teaching, behavior management techniques, and interpersonal communications skills.

EED 6247  
**Educational Programming for Children with Behavior Disorders:** PR: Rank III Certificate or C.I. A study of existing models and theories of educational programs for children with behavior disorders.

EEL 3122C  
**Electrical Networks:** PR: EGN 3373. Analysis and design of linear circuits, transients, network function. Laplace transform.

EEL 3307C  
**Electronic Engineering:** PR: ENG 3373; MAP 3305. Electronic devices and circuits design including small signal amplifiers, and switching circuits.

EEL 3341C  
**Introduction to Digital Circuits:** PR: COP 2510 and PHY 3041. Logic gates, memory devices, combinational and sequential subsystems. Karnaugh Maps. Intended primarily for computer science majors.

EEL 3470  
**Electromagnetic Fields:** PR: ENG 3303L and MAP 3305. Introduction to electrical fields and waves.

EEL 3502  
**Signal Analysis & Communications:** PR: EEL 3122C. Signal theory. Fourier series and integral. Design of modulation systems.

EEL 4200C  
**Electrical Machinery:** PR: EGN 3375. Methods and techniques of systems analysis applied to the dynamics of electrical machinery.

EEL 4308C  
**Semiconductor Devices:** PR: EEL 3307 and EGN 3364. Semiconductors with uniform and non-uniform impurity distributions; impurity diffusion, analysis of the p-n junction. Junction and metal-oxide FET and other devices.

EEL 4309C  
**Active Circuits:** PR: EEL 3307, CR: EGN 4714. Integrated circuit fabrication and characteristics. Feedback amplifier types, performance and stability. Introduction to operational amplifier design and application.
Logical Component Design: PR: EGN 3373L. Switching theory and logical design. Logic circuit minimization techniques. Applications to serial and parallel digital components including adders, registers and counters.

Microwaves: PR: EEL 3470. Microwave devices and systems and measurement techniques.


Logical Systems Design: PR: EEL 4342. Systems investigation, design, and operation of digital computers; study of a basic hardware set and a basic software set.

Digital Systems Organization: PR: EEL 4342 or ECM 4504. Design, analysis and implementation of computer based control systems utilizing minicomputers and microprocessors.


Signal and System Analysis: PR: EEL 3122. Difference equations, transform techniques, state variables applied to continuous and discrete systems.

Electric Power Generation and Distribution: PR: EGN 3375 or equivalent. Concept of complex power in single and three phase systems. Synchronous machines, power transformer, and transmission lines system design.

Introduction to Digital Systems: PR: EEL 4342 or equivalent. Combinational logic, sequential logic, introduction to controller design.

Coherent Optics Applications: PR: PHY 3421 and EEL 3470 or C.I. Coherent optical radiation and propagation. Design and analysis of optical components and systems.


Modern Control Design: PR: EGN 4714 or C.I. State space representation of dynamic systems, the transition matrix, linearization of systems, optimal control.

Synthesis of Electric Filters: Analysis and design of electric filters.

Computer System Design: PR: EEL 5365 or C.I. The specification, design, and programming of a digital computer system. Examination of digital systems architecture using a digital design language.

Amplifier Design: Small-signal device models; analysis and synthesis of electronic amplifier circuits in frequency and time domains.

Operational Amplifiers: The design of the differential amplifier stage, multi-staging, linear circuit applications, uses in non-linear circuits, active filters.

Remote Sensing Optical Systems: PR: EEL 3470 or equivalent. Study of electromagnetic phenomena and systems design at optical and near optical wavelengths and the use of such systems in environmental monitoring.


Communication Systems: PR: EEL 6530 or C.I. Deep-space, LOS, and troposcatter communication system. Phase-locked loops, fading, diversity, ranging, SNR and Error-rate calculations system design.
EEL 6530  
Communication Theory: PR: EEL 5542 or C.I. Theory and systems design for communicating in the presence of noise, modulation, optimum filtering, phase-lock loop.

EEL 6550  
Optical Electronics: PR: EEL 5441 or C.I. Introduction to optical electronic systems design, such as both gas and solid state laser systems, optical detectors, modulators, and frequency converters. Optical communication systems.

EEL 6561  

EEL 6612  
Modern Control Theory: State space method of analysis and design for discrete and continuous control, phase plane, Lyapunov stability.

EEL 6621  

EEL 6671  

EEL 6717  
Digital Computer Systems: PR: EEL 6349, ECM 4504 or C.I. Design of various computer systems. The Processor-Memory-Switch level of system analysis applied to systems with one or more central or I/O processors.

EEL 6811  
Modern Analog Computers: Analog programming fundamentals and techniques emphasizing integral use of logic and analog elements as applied to systems design, boundary value problems, and partial differential equations.

EEL 6811L  

EES 3104  
Environmental Engineering Biology: PR: EGN 1381. Principles of biology applicable to the engineering design of water supply and treatment, wastewater treatment and disposal, waste degradation and environmental quality control.

EES 4202  
Environmental Engineering—Chemical Foundations I: Engineering applications of physical and analytical chemistry in the treatment of water and wastewater.

EES 4204  
Environmental Engineering—Chemical Foundations II: PR: EES 4202 or C.I. Continuation of EES 4202 to include organic chemistry and biochemistry and their application to environmental engineering.

EES 4404  
Environmental Health: PR: EGN 3704. Topics and design examples in industrial hygiene, occupational and radiological health hazards, and pollution effects, such as those due to air noise, solid wastes, etc.

EEX 4010  
Introduction to Exceptional Children: PR: C.I. Educational programs, teaching procedures, and materials necessary to provide for the needs of exceptional students.

EEX 4141  
Oral Communication Disabilities of Exceptional Children: PR: C.I. Identification and remediation procedures of communication disabilities, including the areas of speech, hearing, and language disorders.

EEX 4221  
Dimensions to Psycho-educational Appraisal: PR: C.I. Educational policies and procedures aimed at identification of exceptional children in the public schools; evaluation procedures for individual children.

EEX 5051  
Exceptional Children in the Schools: PR: Senior Standing or C.I. Characteristics, definitions, educational problems, and appropriate educational programs for the exceptional children in schools.

EEX 5105  
Educational Implications for the Speech and Language Disorders of Exceptional Children: PR: Rank III Certificate or C.I. Identification, evaluation, interpretation, and planning appropriate learning experiences to aid exceptional children with speech, hearing, and language disorders.

EEX 5215  
Psycho-educational Appraisal of Exceptional Children: PR: Rank III Certificate or C.I. Selection of performance objectives, diagnostic measures, prescriptive teaching programs, and progress evaluation procedures for individualizing instruction.
Supervised Teaching Practicum with Exceptional Children: PR: Bachelor's degree, approved program, and C.I. Supervised observation and teaching under the direction of a properly certified exceptional child teacher.

EGC 3443 Interviewing and Counseling Techniques: PR: PSY 2013, 2014 and PPE 3003. A survey into practical experience of interviewing and counseling procedures in most facets of psychology and related fields.

EGC 5005 Introduction to Guidance in Schools: PR: Completion of Phase II of Educ. Prof. Prep. or Rank III or C.I. A basic course presenting an overview of the philosophy, organization, administration and operation of guidance and pupil personnel services in the schools.

EGC 5033 Guiding Human Relationships in the Classroom: PR: Senior standing or Rank III. A course to teach human relationship skills which will enhance intra- and inter-personal relating skills in classrooms.


EGC 6235 Procedures for School Group Guidance Testing: PR: EDF 6432 or C.I. Survey of various educational and psychological objective instruments used in schools to measure achievement, aptitude, interests, ability. Emphasis on administration and score interpretation.

EGC 6317 Vocational and Career Development Procedures: PR: Rank III Certificate. Forces which affect career choice and shape personal development; vocational counseling, career education, and parent-student-school interrelationships.

EGC 6435 Theories and Techniques of Individual School Counseling: PR: EGC 5005 or C.I. Major theories and approaches to school counseling, correlating them with counterpart theories of personality and learning.

EGC 6446 Counseling Practicum in Schools: PR: Rank III Certificate, EGC 5005, 6505, 6435 or C.I. Supervised counseling emphasizing competence in (1) individual counseling; (2) working with groups; (3) tests in education-vocational-personal counseling.

EGC 6505 Group Procedures in School Guidance Counseling: PR: Rank III Certificate. EGC 5005 or EGC 6435, or C.I. Nature, theory, process of group counseling including study of dynamics related to change in values and behavior of children and adolescents; class demonstration and practice.

EGN 1081 Man Made World: Introduction to engineering and its role in the understanding of the man made world.

EGN 1111C Engineering Graphics: Spatial visualization, sketching, and graphical presentation as a form of engineering communication. Engineering drawing, descriptive geometry, manipulation of vectors and graphical solution techniques.

EGN 1380 Chemical Foundations of Engineering: PR: Satisfactory performance in one year of high school chemistry or physics; CR: MAC 2154. Engineering applications of basic chemical concepts. Atomic and molecular structure, states of matter and their energies, chemical equilibria and reaction rates, organic compounds, and industrial processes.


EGN 1510 Creative Design: PR: C.I. Role of the engineer as a creative design professional. Emphasis on understanding the creative process and the factors that influence it. Case studies.

EGN 2382 Engineering Concepts: CR: MAC 3311. Introduction to the basic physical phenomena essential to understanding of engineering structures, machines processes, and systems. Primary emphasis on mechanics, materials behavior, and thermofluid mechanics phenomena.

EGN 3311 Engineering Analysis—Statics: PR: EGN 2382 and MAC 3312. Fundamental concepts of mechanics including resultants of force systems, free-body diagrams, equilibrium of rigid bodies, and analyses of structures.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGN 3321</td>
<td>Engineering Analysis — Dynamics</td>
<td>PR: EGN 3311 and MAC 3313. Kinematics and kinetics of particles and rigid bodies; mass and acceleration, work and energy, and impulse and momentum.</td>
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<tr>
<td>EGN 3353</td>
<td>Fluid Mechanics</td>
<td>PR: EGN 3343. Basic principles of continuum fluid mechanics and transport concepts.</td>
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<tr>
<td>EGN 3374L</td>
<td>Electronic Engineering</td>
<td>PR: EGN 3373. Introductory concepts of electronic components with emphasis on solid state devices, basic amplifiers, biasing, small signal performance.</td>
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<tr>
<td>EGN 3375L</td>
<td>Electrical Devices and Systems</td>
<td>PR: EGN 3373L. Electromagnetic energy conversion devices, feedback amplifiers, and instrumentation.</td>
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<tr>
<td>EGN 3383</td>
<td>Electrical Science</td>
<td>PR: MAC 3313 and EGN 2382. General concepts of electricity and magnetism; the development of fundamental laws of electrical engineering; the introduction of the basic circuit elements.</td>
<td></td>
</tr>
<tr>
<td>EGN 3704</td>
<td>Engineering and the Environment</td>
<td>PR: EGN 1381 or equivalent. Man's interaction with the air, water and land environment and the role of engineering in control of this environment for the benefit of mankind.</td>
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</tr>
<tr>
<td>EGN 4032</td>
<td>Professionalism, Practive and Ethics</td>
<td>PR: Junior or Senior Standing. Study of the professional engineer's role, practice and responsibility to act in the interests of public health, safety and welfare.</td>
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</tr>
<tr>
<td>EGN 4033</td>
<td>Technology and Social Change</td>
<td>Review of existing theories of social change, analysis of the role of technology as related to social change, and study of contemporary events in technology and their possible impact on society.</td>
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<tr>
<td>EGN 4344</td>
<td>Thermodynamics and Transport Processes</td>
<td>PR: EGN 3343; CR: EGN 3363. Consequences of the second law and combined first and second law analysis of thermodynamics systems. Introduction to heat transfer including conduction, convection, and radiation.</td>
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<tr>
<td>EGN 4514</td>
<td>Senior Creative Design</td>
<td>PR: Senior standing. Application of the fundamental engineering design algorithm to design synthesis and inventiveness methods culminating in an individual or group engineering design project.</td>
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</tbody>
</table>
EGN 4624 Engineering Administration: PR: EGN 3613 and senior standing. Engineering organization and administration; delegation of authority and responsibility; effective utilization of resources; compensation structure, labor-management relations; selected case studies.


EGN 4714 Linear Control Systems: PR: MAP 3305 and EGN 3375L. Theoretical and experimental study of the dynamics of linear, lumped parameter models of mechanical, electrical, fluid, thermal systems as applied to control systems and design applications.

EGN 4813 Science in History: Examination of the reciprocal relations of science and society from ancient to recent times.

EGN 4814 Engineering & Technology in History: Important developments in engineering and technology and their effect on society and our socio-economic processes.

EGN 4815 Historical Architecture: Architecture as the realization of changing aesthetic and cultural ideals and the expression of changing forms of society. Development of understanding of our physical environment through a study of the forms, functions and determinants of architecture.

EGN 4823 Topics in Urban Development: Production, distribution, and consumption of various commodities. Engineering relationships to distribution, internal structure, function of urban developments. Interrelationship of engineering, social, economic, and cultural phenomena.

EGN 4824 Energy and Man: Investigation of the forms of energy available, energy resources versus requirements in a technological society of increasing population problems, solutions and future predictions.

EGN 4825 Man and Environment: PR: C.I. Environmental factors of importance to man, man's interaction with the environment, engineering and non-engineering measures to insure improvement and maintenance of environmental quality. Not for engineering students.


EGN 4843 Systems Modeling: PR: COC 1100 or equivalent. Representation of man/machine systems through analytic and computer-based models. Case studies in the analysis and improvement of systems in industry, education, and government.

EGN 4844 Man and Machine: The influence and interrelationship of invention and technical progress on the evolution of social forms and institutions.

EGN 5034 Engineering and Public Works: PR: C.I. The purposes, function, and role of engineering within public works.

EGN 5035 Topics in Technological Development: PR: C.I. Case studies of selected topics in the engineering and technological development of western civilization. The weight-driven clock, steam engine, electric power, radar, electronics, etc.


EIN 3106 Engineering Law: PR: Junior standing. Influence of contract, property and tort law, upon engineering activities; contracts, agency, partnerships, corporations, liens and expert testimony. Patents and licensing.

EIN 3393  

EIN 4116  
Industrial Information Systems: PR: COP 3215, EIN 4332. Study of computerized information systems applied to manufacturing operations. Emphasis on development of automated information systems for control of men, materials and equipment. Laboratory assignments.

EIN 4130L  

EIN 4214L  
Safety Engineering: PR: Junior standing. Basic principles of accident prevention in relation to hazards within workplace environment including machinery, flammable materials, pressure vessels and electrical hazards.

EIN 4243  
Human Engineering: PR: Senior standing. Man-machine systems; design and conduct of human engineering studies.

EIN 4264  
Occupational Health: Industrial health hazards and occupational diseases. Control of health hazards; substitutions of less toxic materials, process changes, segregation of hazardous processes, noise control, radiation hazards.

EIN 4332  

EIN 4364L  
Industrial Facilities Planning design: PR: EIN 3315. Comprehensive design of industrial production systems including inter-relationships of plant location, process design, and materials handling. Laboratory assignments.

EIN 4383  

EIN 4414  
Introduction to Public Systems Analysis: PR: STA 3032 or equivalent. Application of probability and statistics to the analysis of public systems data. Operations research models and applications; economic decision-models: cost/benefit analysis.

EIN 5117L  
Management Information Systems I: PR: EIN 9116 or C.I. The design and implementation of computer-based Management Information Systems. Consideration is given to the organizational, managerial and economic aspects of MIS.

EIN 5234L  
Industrial Security Systems Engr: PR: Consent of instructor: Consideration of security threats. Methods of detection/control with emphasis on design and layout of automatic alarm systems for intrusion detection.

EIN 5235L  

EIN 6140  
Project Engineering: PR: Graduate standing. Role of the project engineering in research and development, emphasizing the sequence of steps from project proposal to project completion. Analytical techniques will be considered.

EIN 6215  
System Safety: PR: EIN 4214 or C.I. Concepts of system safety as applied to the recognition, evaluation and prevention or control of hazards in industry. Fault free analysis and risk management.

EIN 6236L  

EIN 6258  
Man—Computer Interaction: PR: EIN 4243 or C.I. The elements of man-computer interactive systems; hardware and software considerations; requirements of CAI, CAD, and MIS applications; design difficulties found in these systems.
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>EIN 6337</td>
<td>Production &amp; Inventory Control</td>
<td>EIN 4332 or equivalent. Review of models and techniques used in forecasting, production control and inventory control. Includes aggregate planning, production scheduling, inventory management, models, etc.</td>
</tr>
<tr>
<td>EIN 6357</td>
<td>Engineering Economic Analysis</td>
<td>PR: EGN 3613. The engineering economic audit, breakeven point analysis, variable budget control of manufacturing costs, cost analysis and product pricing.</td>
</tr>
<tr>
<td>EIN 6387</td>
<td>Analysis of Industrial Operations</td>
<td>PR: EIN 6357. Role of engineering economics and operations research in analysis of industrial operations. Includes application of linear programming, queuing, inventory model and decision theory case studies.</td>
</tr>
<tr>
<td>EIN 6416</td>
<td>Public Works Economics</td>
<td>PR: EGN 3613 or equivalent. Economic considerations in public works planning. The nature and objective functions of public works projects; cost estimating, cost allocation and pricing. Cost/benefit analysis on primary and secondary benefits from public works projects.</td>
</tr>
<tr>
<td>EIN 6417</td>
<td>Public Operating Systems Analysis</td>
<td>PR: STA 3032 or equivalent. Data base for public operating systems, including identification of data requirements. Development of service demand and workload relationships, resource and manpower requirements.</td>
</tr>
<tr>
<td>EIN 6419</td>
<td>Urban Dynamics</td>
<td>PR: C.I. Use of computer simulation to analyze governmental and private sector polices in selected areas such as housing programs, industrial, growth, worker training programs, environmental quality control, urban planning and land use planning.</td>
</tr>
<tr>
<td>ELD 6051</td>
<td>Theories of Learning Disabilities of School Children</td>
<td>PR: Rank III Certificate or C.I. An introduction to etiology of learning disorders, with emphasis on psychological process disorders as they relate to school achievement.</td>
</tr>
<tr>
<td>ELD 6114</td>
<td>Instructional Diagnosis of the Learning Disabled Child</td>
<td>PR: ELD 6051. Evaluation techniques for diagnosing learning disabilities related to development in the basic school skills areas.</td>
</tr>
<tr>
<td>ELD 6211</td>
<td>Behavior Management Techniques with Exceptional Children</td>
<td>PR: Rank III Certificate or C.I. Study of pupil management techniques and methods of continuous assessment for modifying and monitoring the learning behavior of exceptional pupils.</td>
</tr>
<tr>
<td>ELD 6235</td>
<td>Individualized and Prescriptive Instruction for the Learning Disabled Child</td>
<td>PR: Rank III Certificate or C.I. Study of program innovations and prescriptive programming for pupils with learning disabilities.</td>
</tr>
<tr>
<td>EMA 5415</td>
<td>Electronic Materials</td>
<td>PR: EMA 4403 or C.I. Advanced topics on electronic materials.</td>
</tr>
<tr>
<td>EMA 6126</td>
<td>Physical Metallurgy</td>
<td>PR: EML 3233 or C.I. Thermodynamics and kinetics of nucleation and growth reactions in metallurgical processes with special emphasis on nucleation in solids. Diffusion theory. Point, line and surface defects.</td>
</tr>
<tr>
<td>EME 5202</td>
<td>Media and Methods in Teaching</td>
<td>PR: Rank III Certificate or C.I. Practicum on various media in the classroom with emphasis on student film making and production.</td>
</tr>
</tbody>
</table>
| EML 3106    | Thermodynamics of Mechanical Systems | PR: EGN 3343. Applied thermodynamics, availability analysis,
thermodynamics of reactive and non-reactive mixtures, thermodynamic relations of properties. Thermodynamic design analysis of complete mechanical systems.

EML 3233 EN 3 (3,0) S, odd years
**Physical Metallurgy:** PR: EGN 3363. Principles underlying the study of transformations in metals. Precipitation, martensite, recrystallization, and solidification.

EML 3234 EN 3 (3,0)

EML 3236 EN 3 (3,0) F
**Structure and Properties of Alloys:** PR: EGN 3363. Relation of properties to structure, properties and environmental factors of engineering alloys.

EML 3262 EN 3 (2,2) F,S
**Kinematics and Kinetics of Machines:** PR: EGN 3321. Graphical, mathematical, and computer aided kinematic analysis and synthesis of basic mechanisms. Kinetic analysis of machines.

EML 3502 EN 4 (4,0) W
**Machine Design and Analysis:** PR: EML 3262. Application of concepts and principles of stress, deflection, strength, and fatigue analysis to machines design.

EML 3709 EN 4 (4,0)
**Fluid Mechanics:** PR: EGN 3353. Continuation of EGN 3353. Topics in gas dynamics including shock waves, viscous flow analysis and solutions in boundary layer theory.

EML 4142 EN 4 (4,0)
**Heat Transfer:** PR: EGN 3353. Steady state and transient conduction in one and two dimensions, convective and radiative heat transfer. Analysis and design of heat exchangers.

EML 4222 EN 4 (4,0) W
**Vibration Analysis:** PR: EGN 3331. Undamped and damp vibrations of single degree of freedom systems. Forced vibrations, transient response. Many degrees of freedom systems, normal modes, vibration of elastic bodies.

EML 4272 EN 3, (3,0)
**Dynamics of Machinery:** PR: EML 3262, EML 4222. Critical speeds and response of flexible rotor systems, whirl gyroscopic effects; balancing of rotating and reciprocating masses; cam dynamics.

EML 4303 EN 3 (2,3)
**Measurement Systems:** PR: EGN 3331, EGW 3373. Application of system design concepts to measurement. Fundamental theory of static and dynamic measurements. Transducer principles and validation of experimental data.

EML 4411 EN 4 (4,0)
**Mechanical Power Systems:** PR: EML 3106. Analysis and design of large power generating systems and components with emphasis of steam plants utilizing both chemical and nuclear fuels.

EML 4412L EN 2 (1,3) W,S
**Mechanical Engineering Laboratory:** PR: EGN 3353. Experimental studies of phenomena and performance of fluid flow, heat transfer, thermodynamic and mechanical power systems.

EML 4505 EN 3 (2,3) F,W,S
**Engineering Design:** PR: EML 3502 and ENL 3106, and senior standing. Application of the design process to the design of engineering components and systems. Fluid, mechanical and thermal problems are considered.

EML 5105 EN 3 (3,0) W

EML 5226 EN 4 (4,0)
**Acoustics:** PR: C.I. Elements of vibration theory and wave motion; radiation, reflection, absorption, and transmission of acoustic waves; architectural acoustics; control and abatement of environmental noise pollution.

EML 5271 EN 3 (3,0)
**Intermediate Dynamics:** PR: EGN 3321, 3331, MAC 3311 or C.I. Dynamics of Particles, distributed mass systems, and rigid bodies from an advanced viewpoint. Virtual work. Lagrange's and Euler's equations. Hamilton's principles.

EML 5451 EN 3 (3,0)
**Energy Conversion:** PR: EGN 3343 and PHY 3101. Unconventional methods of energy conversion; particular emphasis on fuel cells, thermoelectrics, thermonics, solar energy, photovoltaics, nuclear, and magnethydrodynamics.

EML 6104 EN 3 (3,0)
**Classical Thermodynamics:** PR: EML 3106 or C.I. A general postulative approach to classical macroscopic
thermodynamics featuring states as fundamental constructs. Conditions of equilibrium, stability criteria, thermodynamic potentials. Maxwell relations and phase transitions.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EML 6124</td>
<td>Two Phase Flow</td>
<td>PR: C.I. General transport equations for multiphase systems including gas-liquid, gas-solid and liquid-solid systems.</td>
</tr>
<tr>
<td>EML 6154</td>
<td>Conduction Heat Transfer</td>
<td>PR: EML 4142 or C.I. Classical and numerical techniques to the solution of steady and transient conduction heat transfer problems, applications to the design of thermal systems.</td>
</tr>
<tr>
<td>EML 6155</td>
<td>Convection Heat Transfer</td>
<td>PR: EML 6712 or C.I. Convection heat, mass and momentum transfer in laminar and turbulent flows. Emphasis on analysis and evaluation of heat transfer coefficients, heat exchanger theory and design.</td>
</tr>
<tr>
<td>EML 6157</td>
<td>Radiation Heat Transfer</td>
<td>PR: EML 6131 or C.I. Radiation properties and analysis of radiation heat transfer problems. Experimental techniques, applications to the design of space devices and solar energy systems.</td>
</tr>
<tr>
<td>EML 6306</td>
<td>Advanced Engineering Instrumentation</td>
<td>PR: EML 3303 or equivalent. Theoretical and experimental study of principles of operation, analysis and design techniques for systems of a mechanical and electromechanical nature.</td>
</tr>
<tr>
<td>EML 6311</td>
<td>System Control</td>
<td>PR: EGN 4714 or equivalent. Theoretical, experimental and computer methods involved in the design and control systems. Emphasis on non-linear systems and advanced methods for control system analysis and optimization.</td>
</tr>
<tr>
<td>EML 6402</td>
<td>Turbomachinery</td>
<td>PR: EAS 4300 or EML 4411 or equivalent. Application of the principles of fluid mechanics, thermodynamics and aerodynamics to the design and analysis of pumps, compressors, and turbines.</td>
</tr>
<tr>
<td>EML 6416</td>
<td>Solar Energy Systems</td>
<td>PR: EGN 3343, EML 4142 or C.I. Application of thermal science fundamentals to analysis of solar energy components and systems. Solar radiation, flat plate collectors, focusing collectors, water heating, space heating and cooling.</td>
</tr>
<tr>
<td>EML 6453</td>
<td>Energy Analysis</td>
<td>PR: Consent of instructor. Examination of energy demands and potential supply, computer simulation of resource depletion, alternate energy resources, transportation systems, economic and environmental constraints.</td>
</tr>
<tr>
<td>EML 6530</td>
<td>Principles of Design</td>
<td>PR: CES 5102, EML 5271 or C.I. Morphology of design, introductory decision theory, reliability analysis and safety factors, strength optimization, probabilistic aspects and advanced topics in machine design.</td>
</tr>
<tr>
<td>EML 6532</td>
<td>Computer-Aided Design</td>
<td>PR: CES 5102 or C.I. Theory, application and implementation of digital computer oriented algorithms for the synthesis, simulation, analysis and design of mechanical systems.</td>
</tr>
<tr>
<td>EML 6609</td>
<td>Environmental Thermodynamics</td>
<td>PR: EML 3106. Thermodynamics of the environment with applications to the analysis, control and design of thermal systems.</td>
</tr>
</tbody>
</table>
EML 6710 EN 4 (4,0) S
Gas Dynamics: PR: EML 3709 or C.I. Analysis of steady and unsteady subsonic, supersonic and hypersonic flows. Aerodynamics applications to the design of nozzles, diffusers, and high speed wind tunnels.

EML 6712 EN 4 (4,0) W
Mechanics of Viscous Flow: PR: ECM 4114 or C.I. Principal concepts and methods for viscous fluid motion. Incompressible and compressible boundary layer analysis for laminar and turbulent flows.

EMR 4011 ED 4 (4,0) W,Su
Mental Retardation: PR: C.I. An orientation to the meaning, the prevalence, the courses, and educational provisions for the mentally retarded child.

EMR 4211 ED 3 (3,0) W
Curriculum and the Educable Mentally Retarded Child: PR: C.I. Curriculum content and instructional strategies for the educable mentally retarded child.

EMR 4221 ED 3 (3,0) W
Curriculum and the Trainable Mentally Retarded Child: PR: C.I. Curriculum content and instructional strategies for the trainable mentally retarded child.

EMR 4360 ED 3 (3,0) F
Teaching Mentally Retarded Students: PR: C.I. Organizing for instruction: present day and emerging diagnostic and prescriptive teaching practices.

EMR 5051 ED 4 (4,0) S
Fundamental Concepts of Mental Retardation: PR: Rank III Certificate or C.I. Characteristics, and symptom groupings, diagnostic procedures, learning characteristics, and educational treatment procedures of the mentally retarded.

EMR 5218 ED 3 (3,0) W
Curriculum Planning Procedures for the Educable Mentally Retarded: PR: Rank III Certificate or C.I. Appropriate curriculum experiences and adjustments; media use; develop prevocational skills of educable mentally retarded children.

EMR 5225 ED 3 (3,0) W
Curriculum Planning Procedures for the Trainable Mentally Retarded: PR: Rank III Certificate or C.I. Curriculum experiences, media use, prevocational skills development for development levels of trainable mentally retarded children.

EMR 5362 ED 3 (3,0) W

EMR 6261 ED 3 (3,0) W
Homemaking and Social Learning Skills for the Mentally Retarded: PR: Rank III Certificate or C.I. Personal development and management in clothing maintenance and repair; cooking; the use of hand tools; and homemaking tasks.

ENC 1103 HFA 3 (3,0) F,W,S,SU
Composition I: Expository writing with emphasis on effective communication. Writing topics to be based on selected readings.

ENC 1135 HFA 3 (3,0) F,W,S
Exploring Literature Through Writing: PR: ENC 1103 or equivalent. Writing practice based on readings in contemporary prose and poetry selected to invite the interest of students in literature.

Note on Freshman English Program:
ENC 1103 and 1135 may be taken to satisfy the State Department requirement for certification in secondary school teaching or for transfer to colleges that require one full year of Freshman English. Students who intend to major in English, English Education, or Library Science must take ENC 1135. English, Education and Library Science majors must complete ENC 1135 before enrolling in any English courses numbered above 1135 with the exception of ENC 3352.

ENC 3352 HFA 3 (3,0) F,W,S,Su
Professional Reporting Writing I: Emphasis on clear expository writing of memoranda, reports and articles in the student's particular field.

ENC 3355 HFA 3 (3,0) F,W,S,Su
Professional Report Writing II: Instruction and practice in scientific writing including preparation of scientific reports in the student's particular field.

ENC 3412 HFA 4 (4,0) F
Writing Skills: Intensive practice in description narration, exposition and argumentation; control of tone, mood, viewpoint, and level of diction. Applicable to article, essay, and short-story writing.

ENC 3612 HFA 4 (4,0) W
Magazine Writing I: PR: ENC 3412 or C.I. Structure and organization of articles, essays, profiles, and reviews; market analysis; data gathering may be repeated for credit.
ENC 3626
Magazine Writing II: PR: ENC 3612. Continuation of ENC 3612.

ENC 4465
Writing About Literature: Supplies background for recognizing literary allusions and technical terms, assures acquaintance with professional literary journals, and provides supervision of student critical writing.

ENC 5529
Rhetoric and Literature: Investigates the development of written strategies of persuasion. Traces their relation to practical and imaginative literature. Applications to classroom teaching of literature and composition.

ENG 1542
Grammar Review: A systematic review of basic English grammar to improve clarity and accuracy of writing.

ENG 3220
Continental European Fiction Since 1900: A selection of significant works of fiction written in various languages during the present century, read in translation.

ENG 3714
Structure of Verse: Intensive study of the structural characteristics of English poetry, metrical systems, rhyme, scansion, and poetic rhetorical devices.

ENG 3716
Exploring Poetry: A broad cultural approach to poetry, with emphasis upon the major themes and preoccupations of poets of all ages. Students from all disciplines are welcome.

ENG 3810
Practical Criticism: Student evaluation of selected fiction, poetry, and drama through practical exercises in literary criticism.

ENG 4226
British and American Fiction Since 1900

ENG 4320
The British Novel in the 18th Century

ENG 4324
The British Novel in the 19th Century

ENG 4344
The American Novel in the 19th Century

ENG 4452
British and American Drama Since 1900

ENG 4512
History of the English Language: Study of the English language and its development from Anglo-Saxon to Modern.

ENG 4550
Modern English Grammar: Methods in the study of modern English grammar. Emphasis upon the analysis and comparison of traditional, structural, and transformational grammar.

ENG 4574

ENG 4743
British and American Poetry Since 1900

ENG 4813
Historical Survey of Literary Criticism: Study of the major critics from classical antiquity through the modern era.

ENG 5215
Studies in Contemporary Fiction: Fiction of the last 20 years in the United States and Britain.

ENG 5430
English Drama to 1642 (exclusive of Shakespeare)

ENG 5431
Restoration and 18th Century English Drama

ENG 5830
Modern Theories of Literature: Criticism since 1800.

ENG 5833
Use and Enjoyment: Criticism from Plato to Johnson.
ENG 6108
Literary Genres: Provenance, structure and critical problems in a specific genre such as tragedy, the epic, the novel, or the lyric.

ENG 6155
Media and Popular Literature: Study of the literary content of contemporary media: popular fictions, such as science fiction, detective fiction, and historical fiction. Application to classroom teaching.

ENL 2011
Survey of English Literature to 1625

ENL 2018
Survey of English Literature, 1626-1798

ENL 2025
Survey of English Literature, 1798-1914

ENL 3028
Survey of British Literature Since 1914

ENL 4110
Chaucer: *The Canterbury Tales, Troilus and Criseyde*, and other works.

ENL 4120
Milton: *Paradise Lost, Paradise Regained, Samson Agonistes*, shorter poems and selected prose.

ENL 4131
Readings in Shakespeare: Reading and analysis of a selected group of comedies, histories, and tragedies for English Education majors.

ENL 4132
Shakespeare Studies: Reading, analysis, and discussion of Shakespeare's plays. May be repeated for credit.

ENL 4321
Renaissance Studies: Reading, analysis and discussion of literature in English: 1588-1660. May be repeated for credit.

ENL 4353
18th Century Studies: Reading, analysis, and discussion of literature in English: 1660-1660. May be repeated for credit.

ENL 4521
19th Century Studies: Reading, analysis, and discussion of literature in English: 1800-1814. May be repeated for credit.

ENL 5145
Shakespeare's Histories

ENL 5146
Shakespeare's Comedies

ENL 5147
Shakespeare's Tragedies

ENL 5332
English Renaissance Literature I: Elizabethan poetry and prose, 1588-1603.

ENL 5346
English Renaissance Literature II: Jacobean and Caroline poetry and prose, 1603-1642.

ENL 5347
English Renaissance Literature III: Commonwealth poetry and prose, 1642-1660, including Milton.

ENL 5355
Studies in Restoration English Literature: Literature of the Restoration.

ENL 5356
English Literature 1700-1745: Prose and poetry of the first half of the 18th Century.

ENL 5357
English Literature, 1745-1798: Prose and poetry of the last half of the 18th Century.

ENL 5405
The Romantic Revolt (19th Century Literature): The romantic revolt in poetry and prose; English, American, and Continental literature, 1798-1832.

ENL 5415
Doubt and Belief (19th Century Literature): English, American, and Continental literature, 1832-1870.

ENL 5424
ENU 4005

ENU 4103
Nuclear Engineering: PR: EGN 3343 and PHY 3101. Introduction to the principles of nuclear engineering, nuclear chain reactions, reactor systems, and control. Health physics, radiation shielding and applications of nuclear energy.

ENV 4119

ENV 4404

ENV 4434
Sanitary Systems Design: PR: ENV 4404 and 4504 or C.I. Planning capacity and design of water distribution systems, sanitary sewerage, storm drainage systems, water and wastewater treatment plants.

ENV 4504

ENV 5355
Solid Wastes: PR: EGN 3704 or C.I. Engineering design and analysis problems associated with collection and disposal of solid wastes.

ENV 5615
Environmental Impact Assessment: PR: C.I. Evaluation, estimating, and predicting the effects of structures, processes, and systems upon the environment and the effects of environmental changes upon human populations.

ENV 5625
Water Resources Engineering: PR: ENV 4404 Systems identification and solution to complex water allocation problems, and other hydraulic engineering designs and operations using economic analysis and operations research techniques.

ENV 6015
Unit Operations and Processes of Sanitary Engineering: PR: ENV 4404, and ENV 4504. Theory and design of physical, chemical, and biological operations and processes used in sanitary engineering.

ENV 6016
Unit Operations and Processes of Sanitary Engineering II: Continuation of ENV 6015. Theory and design of physical, chemical, and biological operations and processes.

ENV 6017L
Unit Operations and Processes Laboratory: PR: EES 5206 or C.I. Laboratory exercises in physical, chemical, and biological processes applicable to design.

ENV 6106
Atmospheric Pollution Control: PR: ENV 4119 or C.I. Atmospheric composition and dynamics, sources and nature of contaminants, toxicity thresholds and biological significance, engineering methods of measurement design and control.

ENV 6356
Solid Wastes Management: Study of the extent and characteristics of the solid waste problem, collection and disposal systems, environmental modeling and selected designs.

ENV 6416
Water and Wastewater Treatment Systems: PR: C.I. Integration of unit operations and processes into treatment systems. Emphasis will be placed on functional hydraulic, and economic design using computers.

ENV 6436
Water and Wastewater Systems Design: PR: ENV 4404 and 4504 or C.I. Project course on design of water and wastewater systems.

ENY 4004
General Entomology: PR: ZOO 1010. Introduction to insects; their identification, biology and ecology.

ESE 3011

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<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>ESE 3940</td>
<td>Secondary School Student Teaching—Block A: PR: EDF 3255 and EDF 3603. Junior year student teaching in a secondary school under the supervision of a certified classroom teacher.</td>
<td>ED 3 (0,14) F,W,S</td>
</tr>
<tr>
<td>ESE 4943</td>
<td>Secondary School Student Teaching—Block C: PR: ESE 3940. Senior year student teaching in a secondary school under the direction of a certified classroom teacher.</td>
<td>ED 9 (0,30) F,W,S</td>
</tr>
<tr>
<td>ESE 5214</td>
<td>Secondary School Curriculum Improvement: PR: Rank III Certificate or C.I. Secondary School self-studies for curriculum projects, accreditation reports, or staff development.</td>
<td>ED 4 (4,0)</td>
</tr>
<tr>
<td>ESE 5335</td>
<td>Teaching the Non-English Student: PR: FLE 3063 or C.I. Bilingual and non-linguistic instruction in curriculum areas and in English as a second language.</td>
<td>ED 4 (4,0)</td>
</tr>
<tr>
<td>ESE 6217</td>
<td>Patterns of Curriculum and Instruction: PR: Rank III Certificate or C.I. An analysis of exemplary secondary school programs and instructional procedures.</td>
<td>ED 3 (3,0)</td>
</tr>
<tr>
<td>ESE 6218</td>
<td>Curriculum Writing: PR: Rank III Certificate or C.I. Goal analysis, task analysis, needs assessment and writing performance objectives for developing courses of study.</td>
<td>ED 3 (3,0) F</td>
</tr>
<tr>
<td>ESE 6325</td>
<td>Curriculum in the Secondary School: PR: Rank III Certificate or C.I. The foundations, design and development of curriculum in the American culture.</td>
<td>ED 4 (4,0) S</td>
</tr>
<tr>
<td>ESE 6935</td>
<td>Seminar in Secondary School Instruction: PR: Rank III Certificate or C.I. Systematic and objective analysis of instruction, human relations, approaches to improving instructions and teaching strategies.</td>
<td>ED 3 (3,0)</td>
</tr>
<tr>
<td>ESI 4144</td>
<td>Engineering Applications of Computer Methods: PR: COP 3215 and MAC 3314. Structuring engineering problems for computers including computer characteristics and performance measures. Introduction to time sharing and computer aided design.</td>
<td>EN 4 (4,0) F,S</td>
</tr>
<tr>
<td>ESI 4524</td>
<td>System Simulation with Digital Computers: PR: COP 3215 or equivalent. Methods and procedures for simulating large scale systems with digital computers, FORTRAN, CSMP and GPSS programming languages are used.</td>
<td>EN 3 (2,2) S</td>
</tr>
<tr>
<td>ESI 5234</td>
<td>Engineering Reliability and Quality Assurance: PR: STA 3032 or C.I. Design and management of reliability programs and quality assurance systems; mathematics of reliability.</td>
<td>EN 3 (3,0) W</td>
</tr>
<tr>
<td>ESI 6316</td>
<td>Operations Research I: PR: EGN 4634 or equivalent. Methods of operations research including formulation of models and derivation of solutions by optimization techniques; sequencing and replacement, linear programming, geometric and dynamic programming.</td>
<td>EN 3 (3,0) F</td>
</tr>
<tr>
<td>ESI 6317</td>
<td>Operations Research II: PR: ESI 6316. Introduction to stochastic models and techniques including queuing theory. Simulation, non-linear programming, calculus of variations, and forecasting.</td>
<td>EN 4 (4,0) W</td>
</tr>
<tr>
<td>ESI 6336</td>
<td>Queuing Systems: PR: ESI 5217. Analysis of queuing systems and waiting line problems using analytical and Monte Carlo methods. Laboratory assignments.</td>
<td>EN 3 (3,0) Su</td>
</tr>
</tbody>
</table>
### Inventory Theory
PR: EIN 4332 & EIN 4116 or C.I. Introduction to the theory of inventory control. Emphasis on construction and solution of mathematical models. Includes analysis of inventory systems under deterministic and and stochastic demand.

### Linear Programming
PR: EGN 4634 or equivalent. Theoretical and computational aspects of linear programming and related topics. Includes simplex algorithms, duality theory and integer programming. Operational applications and computer solutions are emphasized.

### Non-linear Programming
PR: ESI 6316. Study of non-linear programming, separable programming, and geometric programming.

### Dynamic Programming
PR: ESI 6316. A study of the optimization of multi-stage decision processes based on the application of the principle of optimality. Stochastic and deterministic models are developed.

### Systems Dynamics
PR: COP 3215 or equivalent. Industrial dynamics and the use of computer-based simulation models for the improvement of management control systems. Use of Dynamo II computer simulation language.

### Mathematical Systems Theory III

### Structural Design

### Electronic Circuits
PR: 10 quarter hours of Solid State Electronics and MAC 3253. Analysis and design of Electronic Circuits. Introduction to computer-aided design.

### Digital Circuits
PR: 10 hours solid state electronics. Design of digital circuits using integrated circuits. Laboratory.

### Electricity and Electronics
Basic principles of electric circuits and electronic amplifiers. Introduction to integrated circuits.

### Senior Systems Laboratory
PR: Senior Standing and C.I. Experiments covering topics in electronics module. Use of latest integrated circuit function blocks.

### Feedback Control
PR: ETE 3122 and MAC 3254. Feedback control system analysis and design techniques, control system components, and applications to practical control systems.

### Communications Systems
The study of modulation/demodulation systems.

### Antennas and Propagation
PR: ETE 3122. Basic theory and technology used in high frequency transmission lines and waveguides, propagation and radiation, antennas.

### Power Transmission
PR: C.I. Analysis of transmission systems and components. Control, stability, fault analysis, and protection in power systems.

### Power Utilization
PR: C.I. Analysis of the economic aspects of distribution and use of power in industry. Analysis of motors and generators.

### Computer Systems
PR: ETE 3632. Design and analysis of computational circuitry, memory, computer interfaces, displays, and I/O devices. Study of microcomputers with applications.

### Electro-Mechanical Design
PR: ETE 4111 and ETG 4510. Introduction to mechanical and electro-mechanical devices and their applications in industry.

### Applied Statics
PR: MAC 1132 or Equivalent. Coplanar parallel, concurrent and noncurrent force systems. Noncoplanar concurrent and non concurrent force systems. Centroids, centers of gravity and moments of inertia of areas.
ETG 4510

ETG 4530C
Strength of Materials: PR: ETG 3502 or C.I. Relationship between external forces and action of members of a structure. Topics include stress and strain, torsion, beams, columns, stress concentrations and fatigue.

ETG 4910
Senior Project: PR: ETM 4590. Individual project involving product conception, design, development, construction, and testing. A final technical report is required.

ETI 3421C

ETI 3440
Product Design: Principles of layout and dimensioning for production. Consideration of design factors, standards, specifications and codes with emphasis on productibility.

ETI 3611

ETI 3651
Computer Methods in Industry: PR: COC 1100 or equivalent. An overview of industrial EDP applications. Includes data processing concepts, functions of the computer, and applications in data processing, process and machine control.

ETI 3654
Cost Estimation and Analysis: Determination and analysis of cost of manufacturing and construction operations including applicable indirect costs. Costs of all applicable work materials and services are included.

ETI 3671

ETI 3690
Technical Sales: Application of technical knowledge in sales and service. Relationship of technical sales organization to production, customers, and competitors.

ETI 4110

ETI 4452
Plant Maintenance Operation: Organization of the maintenance function in manufacturing and service industries. Maintenance planning and scheduling analysis of required and preventive maintenance operations, including economic trade-offs.

ETI 4640
Process Planning and Scheduling: Planning and control of specific tasks, and manhours related thereto. Includes description and application of techniques used in construction and manufacturing industries.

ETI 4661
Plant Layout and Material Handling: Covers functional phases of plant site selection, plant layout, material handling, warehousing, space allocation, CPM concepts and use of electronic computers.

ETI 4700
Occupational Safety: Accident prevention and the operation of an industrial safety program. Basic requirements of the Occupational Safety and Health Act standards.

ETI 4642
Production Control: PR: EIN 4332 & EIN 4116 or C.I. Analytical methods in production control. Topics include: forecasting, production planning and scheduling, sequencing, and manufacturing process control. Emphasis given to the application of computer systems.

ETM 3310

ETM 3314
Hydraulics and Hydrology: PR: Junior standing. Applied hydraulics and hydrology including design of in closed and open channel flow, rainfall, runoff, seepage, ground water, storage and impoundments, wells, etc.

ETM 4201
Applied Thermodynamics: PR: MAC 3254. Introduction to concepts of energy, work, and heat; thermodynamic
properties and processes; basic laws; cycle efficiency; flow through orifices and nozzles; empirical design formulae.

ETM 4403C  

ETM 4512C  

ETM 4590  
Design Integration: PR: ETI 3440. Project design involving planning, control, prototype construction, testing and evaluation.

ETM 4750C  

EUH 2000  
Ancient and medieval Civilization: Rise of culture and civilization in the West from earliest times to the eve of the Renaissance.

EUH 2001  
European Civilization from the Renaissance to the French Revolution: Europe from its feudalmanorial state through the Napoleonic era.

EUH 2002  
Modern European Civilization: The Romantic era, the influence and liberalism, nationalism, and modern industrialism upon political, social, economic, and intellectual life.

EUH 2545  
Introduction to Anglo-American Law: A historical survey of the development of the principles and processes of the American law from its origins in English common law to the present.

EUH 3121  
Age of Transition: A survey of social, economic, political, religious, and cultural developments in Europe from the fall of Rome to the 10th century.

EUH 3122  
Medieval Society and Civilization.

EUH 3142  
Renaissance and Reformation: The influence of Renaissance humanism on arts, letters, and politics; Luther and Protestantism; the Catholic Counter-Reformation and the Thirty Years' War.

EUH 3202  
Enlightenment and Religious Revival: Science and political absolutism; the Enlightenment and the philosophies; secularism, cosmopolitanism and humanitarianism; the French Revolution; religious revival, and the beginning of romanticism. (Formerly EUH 3121.)

EUH 3235  
Romanticism and Realism: Napoleon and nationalism; new ideas; conservatism; liberalism, romanticism, republicanism and socialism; urbanization, technology and mass culture; religious decline; Realpolitik, racism, imperialism and militarism. (Formerly EUH 3122.)

EUH 3242  
The Rise of Mass Culture and Democracy, 1890-1930: Europe in the era of modern technology, militarism, the First World War, Paris Peace Conference, popular culture, and new democratic institution east of the Rhine.

EUH 3281  
Second World War and Rebirth of Europe: Origins of World War II; Hitler's "New Order," and resistance movements; Cold War; de-Stalinization of Russia; Sovietization of East Central Europe; Western reconstruction, and prosperity.

EUH 3400  
The Classical World: Greece: History and culture of Greece from the Minoan-Mycenaen to the Hellenistic age, with emphasis on contributions in art, literature and philosophy. (Same as HUM 3431).

EUH 3411  
The Classical World: Rome: History and culture of Rome from the Etruscan Period to the dissolution of the empire, with emphasis on contributions in architecture, law and literature. (Same as HUM 3432).

EUH 3453  
Age of Revolution and Napoleon: Cause and course of the revolution; the rise and fall of Napoleon; Impact on the thought and action of Western Europe.

EUH 4284  
Fascism and the Totalitarian Dictatorships: Totalitarian ideologies, institutions, and practices in Lenin's and Stalin's Russia. Mussolini's Italy, and Hitler's Third Reich; fascist movements in the non-totalitarian states.
EUH 4451 HFA 4 (4,0)
France, 1815-1914: Legacy of the French Revolution; Revolutions of 1830 and 1848; Franco-Prussian War and Third French Republic; Franco-German Rivalry and formation of the Entente.

EUH 4456 HFA 4 (4,0)
France, 1914-Present: World War and aftermath; Locarno spirit; rise of Fascism and French response, World War II; Fourth Republic and Reconstruction; deGaulle and the Fifth Republic.

EUH 4462 HFA 4 (4,0)
The Rise of Modern Germany: Central Europe from the Reformation to 1890; The Thirty Years' War and absolute despotism; Austro-Prussian rivalry; the German Enlightenment, Bismarck and the Second Reich.

EUH 4464 HFA 4 (4,0)
Hitler's Third Reich: German nationalism and militarism; World War I and the Versailles Treaty; the Weimar Republic and the rise of the Nazis; Second World War, division and recovery.

EUH 4501 HFA 4 (4,0)
English History: 1485-1815

EUH 4502 HFA 4 (4,0)
British History: 1815-Present

EUH 4503 HFA 4 (4,0)
English History to 1485

EUH 4511 HFA 4 (4,0)
British History: Tudor-Stuart Period: A study of the Tudor-Stuart period, with particular emphasis on the civil/religious conflicts of the time.

EUH 4530 HFA 4 (4,0)
British Empire and Commonwealth: Development of the British Empire and Commonwealth since the American Revolution.

EUH 4571 HFA 4 (4,0)
History of Russia to 1801: Kievan State; Mongol Yoke; Development of Muscovite Expansionism and Absolutism; Time of Troubles; Westernization of Russia under Peter I and Catherine; Role of Orthodox Church.

EUH 4572 HFA 4 (4,0)
History of Russia: 1801-1917: Alexander I; Napoleonic Invasion, Revolutionary Movement; Russian Policy toward Central Asia and China; Great Reforms; Russo-Japanese War; Revolution of 1905; Constitutional Period; Triple Entente.

EUH 4573 HFA 4 (4,0)
History of the Soviet Union: 1917-Present: First War; 1917 Revolutions; Civil War; New Economic Policy; Stalin-Trotsky Struggle; Collectivization; Stalinist Purges; Second War; Post-Stalin Russia; Khrushchev; Sino-Soviet Relations.

EUH 4582 HFA 4 (4,0)
Soviet Foreign Policy: 1917-Present.

EUH 4620 HFA 4 (4,0)
European Diplomatic History: 1815-1914: The relationship of the European great powers from the Congress of Vienna to the outbreak of the First World War.

EUH 4621 HFA 4 (4,0)
European Diplomatic History: 1914-Present: The relationship of the European great powers from the outbreak of the First World War to the present.

EVS 3220 EN 3 (3,0)
Wastewater Systems: Fundamentals techniques applicable to technical projects dealing with collection and transmission of wastewater, treatment of wastewater, handling and disposal of effluent and sludge.

EVS 3240 EN 3 (3,0)
Water Supply Systems: Techniques applicable to technical projects dealing with resources, hydrology, treatment, transmission and distribution.

EVS 4101 EN 3 (3,0)
Environmental Sampling and Analyses: Fundamental techniques applicable to sampling and performing lab analyses of our physical environment, including air, water and land. Interrelation and analysis of results.

EVS 4233 EN 3 (3,0)
Treatment Plant Analyses and Control: Basic techniques applicable to lab analyses, control measures, and overall operation of water and wastewater treatment plants.

EVS 4362 EN 3 (3,0)
Air Pollution Control: Fundamental Techniques applicable to analyzing composition and sources of pollutants, measuring concentrations, and controlling emissions. Aid pollution control programs, laws, rules, and regulations.
EVS 4682 Solid Waste Management: Techniques applicable to solid waste composition, collection and disposal. Solid wastes programs, laws, rules and regulations.


EVT 4163 Analysis of Vocational Occupations: PR: Rank III Certificate or C.I. Techniques of analyzing components of an occupation to obtain content for instructions.

EVT 4164 Development of Occupational Education Programs: PR: Rank III Certificate or C.I. Occupational task analysis techniques and its application in formulating a basic instructional plan.

EVT 4165 Curriculum Planning for Vocational Education: PR: Rank III Certificate or C.I. Development of a course of study in teaching a subject in an occupational area.

EVT 4168 Instructional Analysis in Industrial/Technical Education: PR: Rank III Certificate or C.I. Course objectives, techniques, materials, evaluation, and instructional media having special application for teaching occupational and technical subjects.

EVT 4367 Evaluation of Occupational Instruction: PR: Rank III Certificate or C.I. The total evaluation process as it relates specifically to vocational instruction.

EVT 4375 Classroom Management in Occupational Education: PR: Rank III Certificate or C.I. Fundamentals of managing an occupational classroom or laboratory involving the concepts used in industrial plant management.

EVT 4380 Methods of Teaching Technical/Vocational Subjects: PR: Rank III Certificate or C.I. Techniques, skills and procedures used in teaching vocational education subjects.

EVT 4555 Analysis of Learning as Applied to Vocational Education: PR: Rank III Certificate or C.I. Course is designed to familiarize the vocational application to the Vocational classroom.

EVT 4815 Occupational Education Facilities: PR: Rank III Certificate or C.I. Procedures and techniques in planning occupational educational facilities.

EVT 5068 Contemporary Programs in Vocational Education: PR: RANK III Certificate or C.I. Recent developments, contemporary programs, and structure of vocational, technical, and adult education.

EVT 5932 School/Community Relations for Vocational Education: PR: Rank III Certificate or C.I. Identification, analysis, and maintenance of working relationships between school and community institutions.

EVT 5949 Occupational Work Experience: PR: Rank III Certificate or C.I. Directed occupational work experiences and seminar in selected offices, businesses or industries. Designed to fulfill one year’s occupational experience in business and vocational education.

EVT 6065 Philosophical Foundations of Vocational Education: An in-depth study of principles and philosophy for vocational education.

EVT 6260 Cooperative Programs in Vocational Education: PR: Rank III Certificate or C.I. Cooperative programs, organization and coordination of cooperative programs.

EVT 6264 Administration in Vocational Education: PR: Rank III Certificate or C.I. Administrative responsibilities in a local program of Vocational Education which includes two or more fields of occupational education.

EVT 6265 Supervision in Vocational Education: PR: Rank III Certificate or C.I. Supervisory techniques for planning and implementing improvement of staff, curriculum and personal relations in Vocational Education.


ED 4 (4,0) EN 3 (3,0)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Credits</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>EXP 6306</td>
<td>Motivation, Training, and Performance Appraisal: PR: Graduate admission and C.I. Survey of the area of industrial motivation, training, and performance appraisal.</td>
<td></td>
<td>SS 4</td>
<td>(4,0) F</td>
</tr>
<tr>
<td>FIL 3400</td>
<td>History of the Motion Picture: Development of the film industry, its social and economic impact. Same as THE 3251.</td>
<td></td>
<td>SS 4</td>
<td>(4,0)</td>
</tr>
<tr>
<td>FIN 3100</td>
<td>Personal Investments: PR: Junior Standing. Fundamentals of managing and investing one’s money. Course satisfies Advance Environmental Studies requirement. Not usable for BSBA Degree credit.</td>
<td></td>
<td>BA 3</td>
<td>(3,0) F,W,S</td>
</tr>
<tr>
<td>FIN 3303</td>
<td>Financial Institutions: PR: FIN 3403. A study of how financial intermediaries obtain and use their funds and the role they fill in the economy.</td>
<td></td>
<td>BA 4</td>
<td>(4,0) F,W,S,Su</td>
</tr>
<tr>
<td>FIN 3324</td>
<td>Commercial Bank Administration: PR: FIN 3403, FIN 3303. Administrative areas of a commercial bank including operations, management of bank assets and liabilities, lending policies, trust &amp; fiduciary activities, and regulatory aspects.</td>
<td></td>
<td>BA 4</td>
<td>(4,0) W</td>
</tr>
<tr>
<td>FIN 3403</td>
<td>Finance: PR: Junior Standing, ACC 2324, ECO 2023 and ECO 2013. Fundamentals of obtaining and administering funds to meet short and long-term capital needs.</td>
<td></td>
<td>BA 5</td>
<td>(5,0) F,W,S,Su</td>
</tr>
<tr>
<td>FIN 3453</td>
<td>Financial Models: PR: FIN 3403, ECO 3411. Mathematical models applied specifically to financial problems, including those models suitable for representation and manipulation of computers.</td>
<td></td>
<td>BA 4</td>
<td>(4,0), F,W,S</td>
</tr>
<tr>
<td>FIN 3502</td>
<td>Investments: PR: FIN 3403 or C.I. Principles of determining investment policy for individual institutional portfolios.</td>
<td></td>
<td>BA 4</td>
<td>(4,0)</td>
</tr>
<tr>
<td>FIN 4414</td>
<td>Financial Management: PR: FIN 3403. Case studies dealing with business financial management problems and current issues.</td>
<td></td>
<td>BA 4</td>
<td>(4,0) F,S</td>
</tr>
<tr>
<td>FIN 4514</td>
<td>Security Analysis: PR: FIN 3403 and FIN 3502. The problems of selecting securities for various investment purposes.</td>
<td></td>
<td>BA 4</td>
<td>(4,0)</td>
</tr>
<tr>
<td>FIN 4524</td>
<td>Portfolio Management: PR: FIN 3403. The management of security and asset portfolios with emphasis on portfolio selection and management using basic techniques derived from portfolio theory.</td>
<td></td>
<td>BA 4</td>
<td>(4,0) W,Su</td>
</tr>
<tr>
<td>FIN 5405</td>
<td>Financial concepts: PR: Acceptance into the graduate program, ACC 5004 and ECON 5055 or equivalents. Effects of financial decisions upon the firm, interrelationships of these effects and alternatives available to financial managers in meeting financing needs of the firm.</td>
<td></td>
<td>BA 4</td>
<td>(4,0) F,S</td>
</tr>
<tr>
<td>FIN 6426</td>
<td>Financial Management of Current Operations: PR: Graduate standing and FIN 5405 or equivalent. Management of current assets and current liabilities. Special problems associated with expansion, contraction, merger and failure.</td>
<td></td>
<td>BA 3</td>
<td>(3,0)</td>
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<tr>
<td>FIN 6436</td>
<td>Capital Management and Analysis: PR: Graduate standing and FIN 5405 or equivalent. Financial planning, valuation, sources of long-term capital, concepts of cost of capital and capital budgeting.</td>
<td></td>
<td>BA 3</td>
<td>(3,0)</td>
</tr>
<tr>
<td>FIN 6506</td>
<td>Analysis of Investment Opportunities: PR: Graduate standing and FIN 5405 or equivalent. Techniques for evaluating securities, investment decision making, portfolio management.</td>
<td></td>
<td>BA 3</td>
<td>(3,0)</td>
</tr>
</tbody>
</table>
FLE 3063
Foreign Language as Human Behavior: PR: or CR: LIN 3010 or C.I. Nature of language, language learning and teaching basic skills. Weekly laboratory.

FLE 3333
Foreign Language Instructional Analysis: PR: EDF 3255 and EDF 3603. Objectives for a school curriculum and of methods and materials for teaching foreign language.

FLE 4380
Oral Teaching of Foreign Languages: PR: ESE 3940 or C.I. Audio-lingually-based demonstration class. Practice in linguistic methods. One hour laboratory required.

FLE 6665

FLE 6795

FOT 3130
Comparative World Literature I: Masterworks of world literature in translation from the Book of Job to Cervantes. Authors include Homer, Sophocles, Cicero, Virgil, St. Augustine, Dante, Chaucer, Montaigne and Shakespeare.

FOT 3131
Comparative World Literature II: Continuation of FOT 3130, Renaissance to 20th Century, including Pascal, Milton, Rousseau, Goethe, Wordsworth, Poe, Balzac, Chekov, Baudelaire, Yeats, Mann, and Camus. Need not be taken in sequence with FOT 3130.

FRE 1005
French Diction: This course is especially designed for music and voice students with an emphasis on musical terms, French songs and opera libretti.

FRE 1100
Elementary French Language and Civilization: Designed to initiate the student to the major language skills: listening, speaking, reading, and writing.

FRE 1101
Elementary French Language and Civilization: PR: FRE 1100 or equivalent. Continuation of FRE 1100.

FRE 1102
Elementary French Language and Civilization: PR: FRE 1101 or equivalent. Continuation of FRE 1102.

FRE 2200

FRE 2201

FRE 2202
Intermediate French Language and Civilization: PR: FRE 2201 or equivalent. Continuation of FRE 2201 with greater emphasis --- French civilization from the Middle Ages to the present.

FRE 3240
French Conversation: PR: FRE 2202 or equivalent. Development of skills in conversation and comprehension. This course may be repeated for credit. When repeated, credit will apply to general electives only.

FRE 3420
French Composition: PR: FRE 2202 or equivalent. Development of skills in composition.

FRE 4421
Advanced French Conversation: PR: FRE 3240. Advanced conversation on directed topics from various disciplines: Literature, art, psychology, philosophy, music, business and the sciences.

FRE 4422
Advanced French Compositions: PR: FRE 3420. Readings and written imitations of modern literary styles in the form of themes, sketches, poems and original stories.

FRE 4780
French Phonetics and Diction: PR: FRE 3420 or equivalent. French phonology with emphasis on phonic groupings.

FRW 3100
Survey of French Literature I: PR: FRE 2202 or equivalent. Main literary currents and works from the Middle Ages through the Renaissance.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRW 3101</td>
<td>HFA 4</td>
<td>Survey of French Literature II: PR: FRE 2202 or equivalent. Main literary currents and works of the seventeenth and eighteenth centuries.</td>
<td></td>
</tr>
<tr>
<td>FRW 3102</td>
<td>HFA 4</td>
<td>Survey of French Literature III: PR: FRE 2202 or equivalent. Main literary currents and works of the nineteenth and twentieth centuries.</td>
<td></td>
</tr>
<tr>
<td>FRW 3370</td>
<td>HFA 4</td>
<td>Short Stories of 18th, 19th and 20th Centuries: PR: FRE 2202 or equivalent. Selected readings designed to increase reading speed and develop analytical abilities. Authors include: Voltaire, Maupassant, Flaubert, Camus and others.</td>
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<tr>
<td>FRW 4310</td>
<td>HFA 4</td>
<td>Seventeenth Century French Theatre: PR: FRW 3101. Corneille, Racine, and Moliere. A study of the lives and principal works of the authors.</td>
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<tr>
<td>FRW 4480</td>
<td>HFA 4</td>
<td>Twentieth Century French Literature: Contemporary French drama and poetry.</td>
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<tr>
<td>FRW 4482</td>
<td>HFA 4</td>
<td>Stylistics: PR: FRE 3240 or equivalent. An intense study of textual criticism. An examination of the relationship between language and literature; explications and linguistic analysis of literary texts.</td>
<td></td>
</tr>
<tr>
<td>GEB 3004</td>
<td>BA 3</td>
<td>Management: PR: Junior Standing. The interdisciplinary application of the managerial functions of planning, organizing, staffing, directing, and controlling. For Non-Business Majors ONLY.</td>
<td></td>
</tr>
<tr>
<td>GEO 1200C</td>
<td>EN 4</td>
<td>Physical Geography: Basic physical elements of geography including climate, landforms, soils, natural vegetation, minerals and their integrated patterns of world distribution.</td>
<td></td>
</tr>
<tr>
<td>GEO 3370</td>
<td>EN 3</td>
<td>Resources Geography: Analysis of basic principles and problems associated with development, use, conservation, and management of natural resources with special emphasis on the United States.</td>
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<tr>
<td>GEO 3470</td>
<td>SS 4</td>
<td>World Political Geography: Analysis of types and distributions of political systems, review of factors which affect relative power of diverse politics, areas of conflict and arbitration.</td>
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<tr>
<td>GEO 3602</td>
<td>SS 4</td>
<td>Urban Geography: The city as a geographical phenomenon created by human effort, its historical development; patterns of land use as related to economic, sociological and political influences.</td>
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<tr>
<td>GER 1005</td>
<td>HFA 1</td>
<td>German Diction: This course is especially designed for music and voice students with an emphasis on musical terms. German songs and opera libretti.</td>
<td></td>
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<tr>
<td>GER 1100</td>
<td>HFA 4</td>
<td>Elementary German Language and Civilization: Designed to initiate the student to the major language skills, listening, speaking, reading, and writing.</td>
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<tr>
<td>GER 1101</td>
<td>HFA 4</td>
<td>Elementary German Language and Civilization: PR: GER 1100 or equivalent. Continuation of GER 1100.</td>
<td></td>
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<tr>
<td>GER 1102</td>
<td>HFA 4</td>
<td>Elementary German Language and Civilization: PR: GER 1101 or equivalent. Continuation of GER 1101.</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td>Schedule</td>
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<tr>
<td>GER 2200</td>
<td>Intermediate German Language and Civilization</td>
<td>HFA 4 (4,1) F</td>
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<td></td>
<td>Intermediate German Language and Civilization</td>
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<td>HFA 4 (4,1) W</td>
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<tr>
<td>GER 2202</td>
<td>Intermediate German Language and Civilization</td>
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<td>HFA 4 (4,1) S</td>
</tr>
<tr>
<td>GER 3240</td>
<td>German Conversation</td>
<td></td>
<td>HFA 4 (4,0)</td>
</tr>
<tr>
<td>GER 3420</td>
<td>German Composition</td>
<td></td>
<td>HFA 4 (4,0)</td>
</tr>
<tr>
<td>GEW 3100</td>
<td>Survey of German Literature I</td>
<td></td>
<td>HFA 4 (4,0)</td>
</tr>
<tr>
<td>GEW 3101</td>
<td>Survey of German Literature II</td>
<td></td>
<td>HFA 4 (4,0)</td>
</tr>
<tr>
<td>GEW 3102</td>
<td>Survey of German Literature III</td>
<td></td>
<td>HFA 4 (4,0)</td>
</tr>
<tr>
<td>GEW 3370</td>
<td>Short Story</td>
<td></td>
<td>HFA 4 (4,0)</td>
</tr>
<tr>
<td>GEY 3610</td>
<td>Psychology of Aging</td>
<td>SS 4 (4,0)</td>
<td></td>
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<tr>
<td>GLY 1000</td>
<td>Geology and Its Applications</td>
<td>NS 4 (4,0) F,W</td>
<td></td>
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<tr>
<td>GLY 1100</td>
<td>Historical Geology</td>
<td>NS 4 (4,0) S</td>
<td></td>
</tr>
<tr>
<td>GLY 4005</td>
<td>Rocks and Minerals</td>
<td>NS 3 (2,2)</td>
<td></td>
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<tr>
<td>GLY 4006</td>
<td>Geology of Our National Parks and Monuments</td>
<td>NS 4 (4,0) S</td>
<td></td>
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<tr>
<td>HIS 4150</td>
<td>History and Historians</td>
<td></td>
<td>HFA 4 (4,0)</td>
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<tr>
<td>HIS 4970</td>
<td>Senior Thesis</td>
<td></td>
<td>HFA 4</td>
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<tr>
<td>HLP 4460</td>
<td>Teaching Elementary School Health and Physical</td>
<td>ED 3 (2,1) F,W,S,Su</td>
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<td>Education</td>
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<tr>
<td>HSC 3152</td>
<td>Health Law</td>
<td>NS 3 (3,0) W</td>
<td></td>
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<tr>
<td>HSC 3161</td>
<td>Health Services Organization</td>
<td></td>
<td>NS 3 (3,0) F</td>
</tr>
<tr>
<td>HSC 3328</td>
<td>U.S. Health Care Systems</td>
<td></td>
<td>NS 3 (3,0)</td>
</tr>
</tbody>
</table>
**HUM 4935**  
Senior Seminar: Humanities and Arts in Human Affairs: Forum on the art and thought of the contemporary world. Intended for senior students. Offered as Advanced Environmental Studies seminar.

**INP 3004**  

**INP 3102**  
Applied Psychology: Applications of principles of psychology to personal adjustment, industry, and education.

**INP 6055**  
Applied Problems in Industrial Psychology: PR: Graduate Admission and C.I. Exposure to problems faced in industrial situations through case study approach.

**INP 6065**  
Professional Problems: Graduate Admission. Survey of ethical issues pertaining to the industrial psychologist.

**INP 6215**  
Assessment Centers: Graduate Admission. Survey of assessment center methodology and application.

**INP 6302**  
Organizational Psychology: PR: Graduate admission and C.I. Theories and application of psychological research in organizational functioning.

**INP 6946**  
Industrial Psychology Practicum I: PR: Graduate admission and C.I. Supervised placement in school setting.

**INP 6947**  
Industrial Psychology Practicum II: PR: Graduate admission and C.I. Supervised research in industry.

**INP 6948**  
Industrial Psychology Practicum III: PR: Graduate admission and C.I. Supervised research in industry.

**INR 3002**  
International Relations: Analysis of the fundamental principles and factors affecting interstate relations: the foreign policy decision-making processes of states.

**INR 3024**  
Nationalism: A Systematic Analysis: Theories of modern nationalism as a world-wide political phenomenon including problems of nationalistic wars and rebellions, multi-national states, trans-national organizations.

**INR 3081**  
Contemporary International Politics: Application of the theory and fundamentals of international politics to contemporary world affairs with attention to the impact of current developments upon the international system.

**INR 4102**  
American Foreign Policy: Development of American foreign policy with emphasis on the role and policies of the United States in the contemporary world.

**INR 4224**  
Contemporary International Politics of Asia: Examination of the role in foreign policies of major and secondary powers as they relate to trends in Asia.

**INR 4244**  
Inter-American Politics and Organizations: Examination of relations among American Republics. Special attention given the roles of the United States, the Organization of American States, and trade and aid arrangements.

**INR 4274**  
International Politics of the Middle East: The external politics of the Middle East from a regional-global perspective with particular attention to the region's impact upon the relations of major powers.

**INR 4334**  
American Defense Policy: Study of policy evolution since World War II including consideration of the social and political costs involved and means of control.

**INR 4335**  
Coercion in International Politics: An examination of the role of coercive techniques among states in a nuclear age including theories of nuclear strategy and deterrence.

**INR 4401**  
International Law I: An introduction to the nature, evolution and sources of international law and its role in interstate relations.

**INR 4402**  
International Law II: PR: INR 4401 or C.I. Examination of various subareas of International Law including maritime law, laws of the sea and seabed, air law, and the legal status of outer space.
International Organizations: The nature and growth of international agencies of cooperation. Attention focused on the problems and development of functional, regional, and universal organizations.

ITALIAN Diction: This course is especially designed for music and voice students with an emphasis on musical terms, Italian songs and opera libretti.

Elementary Italian Language and Civilization: Designed to initiate the student to the major language skills: listening, speaking, reading, and writing, in addition to an introduction to Italian culture.

Italian Language and Civilization: PR: ITA 1100 or equivalent. Continuation of ITA 1100.

Elementary Italian Language and Civilization: PR: ITA 1101 or equivalent. Continuation of ITA 1101.

Intermediate Italian Language and Civilization: Designed to continue development of language skills at intermediate level, plus a review of grammar, study of syntax, idiomatic expression, extensive readings and further study of Italian culture.

Intermediate Italian Language and Civilization: Designed to continue development of language skills at intermediate level, plus a review of grammar and study of syntax.

Intermediate Italian Language and Civilization: Designed to continue development of language skills at intermediate level, plus a review of grammar and study of syntax.

History of American Journalism: Development of newspapers and magazines, the press associations and the growth of the electronic media.

Basic Reporting: Development of skills in gathering and writing for the mass media. Student must have minimum ability to type.

News Reporting II: PR: A minimum grade of C in Jrn. 319. Further development of interviewing, newsgathering and writing skills under deadline pressure.

Copy Editing: PR: Minimum grade of C in JOU 3100; ability to type 30 wpm. Fundamentals of copy editing for printed media, including selection, processing and display of news.

Advanced Editing: PR: A minimum grade of C in JOU 3200 or equivalent: Planning content and format of newspaper and other periodicals; layout; dummying, departmental editing, copy desk management.

Film Criticism: PR: A minimum grade of C in JOU 3100. The practice of writing movie reviews: students will review at least one film a week during the course.

Photojournalism I: Learning the use of the still camera, darkroom procedures, review at least one film a week during the course.

Photojournalism II: PR: JOU 3600 or equivalent: Further study in the use of the still camera and darkroom procedures plus color photography.

Public Affairs Reporting: PR: A minimum grade of C in JOU 3100 and JOU 3101. Study of community news sources, reporting courts, city and county government.

Feature Writing: PR: A minimum grade of C in JOU 3100. Writing of feature articles for newspapers and magazines.

Editorial and Column Writing: PR: A minimum grade of C in JOU 3100. Building the editorial page, backgrounding and interpreting the news.

Technical and Scientific Writing: PR: Minimum grade of C in JOU 3100. The practice in the gathering of materials for technical and scientific articles; digesting of technical information into more readable forms.
Critical Writing: PR: A minimum grade of C in JOU 3100. Practice in writing reviews of plays, concerts and books.

The Newspaper in the Classroom: Study of the use of the newspaper as a teaching aid in the classroom. Designed for persons currently teaching or majoring in education.

Freelance Writing: PR: Evidence of satisfactory writing skills. A study of the techniques and procedures of freelance writing, including the preparation of several manuscripts.

English Instructional Analysis: PR: EDF 3255 and EDF 3603. Course objectives for a school curriculum and methods and materials which have special application for teaching English.

Literature for Children: PR: Admission to Phase II or C.I. General survey of books and materials; criteria for analysis and evaluation; types of books available considered in terms of interests, needs, and abilities of children.

Language Arts in the Elementary School: PR: Admission to Phase II or C.I. Content, principles, materials and techniques involved in teaching speaking, listening, writing, and spelling in the elementary school; organizing for instruction.

Teaching Language and Composition: PR: EDF 3255 and EDF 3603. Techniques and methods in teaching of dialects, semantics, the various grammars. A survey of composition and rhetorical methods of selected authors.

Literature for Adolescents: PR: Senior standing or C.I. Selecting and evaluating books for adolescents with emphasis on the uses of literature in the development of young people.

Practicum: The Teaching of Composition: Close work with an experienced instructor in teaching and undergraduate composition course, combined with regular group meetings for discussion of problems of teaching composition.

Practicum: The Teaching of Literature: Close work with an experienced instructor in teaching an undergraduate literature course, combined with regular group meetings for discussion of problems of teaching literature.


Investigation in Children's Literature: PR: Rank III Certificate or C.I. Learning through the utilization of children's literature; literature analysis and evaluation; storytelling skill development; visual and reference materials.


Latin American History: The 19th Century: Continuation of LAH 3130.

Latin American History: The 20th Century: Continuation of LAH 3201.

Law and the Legal System: A survey of legal systems; selected areas of substantive law; ethical considerations; terminology; and role and scope of the legal assistant.

Legal Investigation: A study of how legal questions are researched to obtain the applicable law; and of information collection and investigation procedures.

Legal Composition: C.I. or P.R. LEA 3013. Practicum in preparation of briefs, memoranda and legal documents, including review of accepted practice and format.
LEA 3101 SS 4
Litigation and Trial Practice: A study of the more common types of law suits and procedures involved in the preparation, litigation and appeal of cases.

LEA 3151 SS 4 (4,0) W,Su
Compensation for Injuries: Study of the law governing liability for civil injuries, both personal and property.

LEA 3201 SS 4
Property Law: A study of legal practices, restraints, and privileges governing rights to real property.

LEA 3401 SS 4
Law Office Administration: A study of the organization, control, and operation of a law office with emphasis placed on the role of the legal administrator.

LEA 3601 SS (4)
Criminal Law and the Paraprofessional: A study of the role of the legal assistant in criminal cases; the procedures involved in preparing for trial, trial, and appeals.

LEA 3801 SS 4

LEA 4106 SS 4 (4,0)
Evidence: This course will examine methods of proof of factual issues in courts of law.

LEA 4202 SS 4 (4,0)
Real Estate Law: PR: C.I. or LEA 3201. A study of the law of real property; the more common types of real estate transactions and conveyances; and closing procedures and title problems.

LEA 4204 SS 4 (4,0)
Land Use Law I: PR: C.I. or LEA 3201. Study of the law governing land use including planning, zoning, subdivision and building regulations.

LEA 4205 SS 4 (4,0)
Land Use Law II: C.I. or PR: LEA 4204. Examination of recent statutory changes and judicial interpretations of land use law, especially vis-a-vis planning and environmental protection.

LEA 4211 SS 4 (4,0)
Estates and Trusts: PR: C.I. or LEA 3201. A study of the common forms of wills and trusts and the applicable legal principles; of administration of estates; and of the probate court.

LEA 4315 SS 4 (4,0)
Law and Procedure-Bureaucracy: The study of public and quasi-public bureaucracies and of the functions and structure of their component units, particularly those units responsible for agency conformity with legal obligations and procedures.

LEA 4501 SS 4
Domestic Relations Law: A study of the law of domestic relations, to include divorce, child support and adoptions, and an examination of the role of the legal assistant.

LEA 4813 SS 4 (4,0)

LEI 3433C ED 3 (2,1) F,W,S,Su
School and Community Recreation: PR: Admission to Phase II or C.I. Knowledge and skills of after school activity and summer recreational programs.

LEI 6443 ED 3 (3,0)
School Recreation: PR: Rank III Certificate or C.I. A study of recreational programs related to the public schools.

LIN 2200 SS 5 (4,3) W, Su
English Phonetics and American Dialects: Physiological description and visual notation of speech sounds; regional dialects of American English.

LIN 2701 SS 4 (4,0) W
Psychology of Oral Communication: Psychological principles involved in the communicative process with application to individuals and groups.

LIN 3010 HFA 3 (3,0)

LIN 3710 SS 4 (4,0) S
LIN 4020  SS 4 (4,0) F
Anthropological Linguistics: PR: ANT 3000 or ANT 3410. Survey of anthropological linguistic field techniques in non-native cultures and application of linguistic theories to study of socio-cultural systems.

LIN 4304  HFA 3 (3,0) W
Transformational Grammar: PR: ENG 4550. Introduction to philosophical basis of transformational grammar. Students will develop grammar for modern English.

LIN 4801  HFA 3 (3,0) F
Language and Meaning: A linguistic study of the nature of language, meaning, and the ways in which man uses language in various social, cultural, institutional, and professional settings.

LIN 5137  HFA 4 (4,0)
Linguistics: Modern linguistic theories and studies focusing on language acquisition and development, contemporary American English, semantics, and paralinguistics.

LIN 5705  SS 4 (4,2) S

LIN 6932  HFA 4 (4,0)
Problems in Linguistics: PR: LIN 5137. In-depth study of the application of linguistics to various aspects for teaching and communication.

LIS 3003  ED 3 (3,0) F,W,S
Library Resources and Materials: Use of the library, basic reference material, library services and research methods.

LIS 3016  ED 4 (4,0) F
Introduction to Media Services: Role and scope of media center. Major concepts, standards, trends, and media specialist functions emphasized.

LIS 3412  ED 4 (4,0)
Media Center Operation: PR: C.I. Major functions including acquisition, processing, circulation, file organization, reserve collections, maintenance, and inventory of materials and equipment.

LIS 4310  ED 4 (4,0)
Production of Materials for Media Center: PR: LIS 4428. Skill in producing teacher and student-made materials. Emphasizes graphic, photographic and audio techniques for schools. Lab TBA.

LIS 4422  ED 4 (4,0)
Principles of Media Center Administration: Principles of administration applied to development of resources and services; including planning, leadership, decision making, personnel and financial management, and evaluation. Lab TBA.

LIS 4428  ED 4 (4,0)

LIS 4453  ED 4 (4,0)
School Media Services: PR: C.I. Planning activities and programs to assist teachers and student in utilizing the Media Center. Includes skills development, R/L/V guidance, promotion and in-service techniques. Lab TBA.

LIS 4510  ED 4 (4,0)

LIS 4540  ED 4 (4,0)
Interaction Techniques in Media Services: PR: C.I. Interpersonal skills and communication processes applied to working with administrators, teachers, parents, and students in the media program.

LIS 4601  ED 4 (4,0)
Reference Sources and Services: PR: C.I. Development of skills in locating information and providing reference services.

LIS 4731  ED 4 (4,0)
Organization of Media and Information: PR: C.I. Principles of informational science and bibliography. Methods of organizing print and non-print media, with instruction in cataloging and classification using standard bibliographic tools.

LIS 5453  ED 4 (4,0)

LIS 5508  ED 4 (4,0)
Instructional Technology and Curriculum: PR: LIS 4428. Use and selection of instructional materials as they apply to the curriculum in elementary and secondary schools.


LIT 2020: Literary Analysis: Analysis of fiction, drama, and verse in terms of major elements: plot, conflict, characterization, viewpoint, rhetorical and poetic devices, figurative language, meter, rhyme, verse forms.

LIT 3125: Literature of Modern Man: Reading and discussion of types and forms of modern literature. Satisfies the requirement (II) of the cultural and historical foundation in the Environmental Studies Program.

LIT 3240: World Literature I: Poetry, prose, and drama selected from ancient Hebrew, Greek, and Oriental literature and from that of Renaissance Europe.

LIT 3257: World Literature II: Readings from Moliere, Voltaire, Goethe, Pushkin, Balzac, Tolstoy, Ibsen, Mann, Kafka, Camus, and others.


LIT 3443: Science Fiction: An investigation of science fiction as a literary form, together with selected readings.

LIT 4324: Ethnic Literature in America: Contributions of linguistic and ethnic groups of non-English origin to the literature of the United States.

LIT 6235: World Literature: The study of the influence on British and American literature of selected foreign works read in translation.

LIT 6535: Major Literary Authors: Study of a single author or of two or three associated literary authors, with emphasis on biography, bibliography, and style.

LIT 6544: Movements in Literature: Study of a movement such as naturalism, romanticism, or classicism, or a pervasive idea such as the absurd.

MAA 4226: Introduction to Analysis I: PR: MAA 4226 and MAC 3314. Limits, sequences and continuity; differentiation and integration; derivatives of integrals; infinite series and convergence; the Bolzano-Weierstrass theorem and the Heine-Borel theorem; extensions in Euclidean n-space.

MAA 4227: Introduction to Analysis II: PR: MAA 4226. Continuation of MAA 4226.


MAA 4402: Complex Variables I: PR: MAC 3314. Analytic and harmonic functions; mapping by complex functions; Cauchy's theorem and its implications; the maximum modulus principle; series expansions; the residue theorem and its applications.

MAA 4403: Complex Variables II: PR: MAA 4402. Analytic continuation; decomposition of meromorphic functions into par-
tial fractions; Mittag-Leffler theorem; entire functions; Weierstrass’s Factorization theorem; Riemann Mapping theorem.

MAA 4604
Lebesgue Theory: PR: MAA 4228. Inner and outer measure; measurable sets and functions; the Lebesgue integral.

MAA 5211
Advanced Calculus I: PR: MAC 3314 or C.I. Differential and integral calculus of functions of several variables; vector differential calculus. Emphasis on applications.

MAA 5405
Technique of Complex Variables: PR: MAC 3314. Analytic functions; integration in the complex plane; Laurent series and residue calculus, inversion of Laplace transforms; conformal mappings; application in engineering and the physical sciences.

MAA 6212
Advanced Calculus II: PR: MAA 5211. Two and three-dimensional theory of vector integral calculus with application; infinite series.

MAC 1104
College Algebra: PR: MAT 1024 or 2 years of high school algebra. Sets; exponential and polynomial functions; formula manipulation; graphs; linear equations; vectors; matrices. Not open to students with credit in MAC 1142.

MAC 1114
College Trigonometry: PR: MAC 1104 or equivalent. The circle arc length, circular functions, identities, inverse functions, applications to simple harmonic motion and harmonic analysis, function of angles, complete development of triangle solving.

MAC 1132
College Algebra and Trigonometry: PR: Two years of high school algebra or equivalent. Algebraic expressions, polynomials, graphs, systems of equations, exponents and logarithms; trigonometric functions, triangle trigonometry, laws of sines and cosines, special formulas and trigonometric identities.

MAC 1142
Precalculus Mathematics I: PR: MAT 1024 or two years of high school algebra and one year of high school plane geometry. This course is intended to cover most of the topics usually found in college algebra emphasizing the notion of function.

MAC 1143
Precalculus Mathematics II: PR: MAC 1142 or equivalent (e.g., a course in college algebra which required the mastery of the function concept). Exponential and logarithmic functions; circular and trigonometric functions; inverses of circular functions; complex numbers.

MAC 2154
Analytic Geometry: CR: MAC 1132 or MAC 1143 or equivalent. Topics include coordinate systems; vectors; lines in the plane; lines and planes in space; conic sections; polar coordinates; transformation of coordinates.

MAC 3233
Concepts of Calculus: PR: MAC 1104 or equivalent. Differential and integral calculus of exponential and polynomial functions; optimization of multivariate functions; mathematical models. Not open to students with credit in MAC 3311.

MAC 3253
Applied Calculus I: PR: College algebra and trigonometry. Differential and integral calculus applied to problems in engineering technology fields. Not open to students with credit in MAC 3233 or MAC 3311.

MAC 3254
Applied Calculus II: PR: MAC 3253. Continuation of MAC 3253.

MAC 3311
Calculus I: PR: College Algebra and College Trigonometry, or equivalent. CR: MAC 2154. The differential and integral calculus of elementary functions of one variable with attention to a variety of geometric and physical applications.

MAC 3312
Calculus II: PR: MAC 3311. Continuation of MAC 3311.

MAC 3313
Calculus III: PR: MAC 3312. Continuation of MAC 3312.

MAC 3314
Intermediate Calculus: PR: MAC 3313. Differential and integral calculus of functions of several variables with applications. Topics include vector differential calculus, partial derivatives; multiple integrals; line and surface integrals.

MAE 1810
Elementary School Mathematics: PR: Two years of high school mathematics. Logic, sets, the system of whole numbers.
numbers, numeration systems, the system of integers, the system of rational numbers. Open only to majors in elementary education.

MAE 2811 Elementary School Mathematics II: PR: MAE 1810. The system of real numbers, polynomials, linear equations and inequalities, systems of equations and inequalities, quadratic equations and inequalities, the complex numbers. Open only to majors in elementary education.

MAE 3310 Teaching Mathematics in the Elementary School: PR: Admission to Phase II or C.I. Consideration of selected concepts; organizing for instruction, techniques and activities; class and individual diagnosis; remedial procedures.

MAE 3311 Mathematics Programs in the Elementary School: PR: MAE 3310. Analysis of teaching arithmetic, geometry and measurement; philosophy and objectives; instructional materials; current research and new curricula.

MAE 3330 Mathematics Instructional Analysis: PR: EDF 3255 and EDF 3603. Study of course objectives for the high school curriculum and survey of methods and materials which have special application for teaching mathematics.

MAE 3812 Elementary School Mathematics III: PR: MAE 2811 or C.I. Algebraic structures, selected topics from number theory, experimental and formal geometry. Open only to majors in elementary education.

MAE 4636C Mathematics Laboratory Methods: PR: EDF 3255 and EDF 3603. Mathematics topics with special applications in classroom laboratory situations.


MAE 4871 The Number System: PR: C.I. An axiomatic development of the natural numbers followed by a constructive development of the real and complex numbers. Intended for prospective teachers of mathematics.


MAE 5395 Teaching the Metric System: PR: Rank III Certificate or C.I. Linear, area, volume, mass, force, and temperature measures from the metric system will be studied in relation to teaching aids, methods, and content. (K-12).

MAE 5637 Laboratory Programs in Mathematics: PR: Rank III Certificate or C.I. Design, organization and development of special materials and projects for mathematics independent study.


MAE 6517 Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher: PR: Rank III Certificate or C.I. Diagnosis and remediation of difficulties in mathematics.

MAE 6518 Diagnosis/Remediation of Difficulties in Mathematics for the Clinician: PR: MAE 6517 or C.I. Advanced study; diagnosis and remediation of difficulties in mathematics.

MAE 6549 Practicum in Diagnosis and Remediation of Difficulties in Mathematics, K-12: PR: or CR: MAE 6517, MAE 6518. Supervised diagnostic and remedial instruction with individual children; selection of instructional materials and techniques.

MAE 6899 Seminar in Mathematics Teaching: PR: Rank III Certificate or C.I. A review of prominent research and the writings of selected authors in mathematics education.

MAF 4501 The Family: PR: SOC 2000. The family viewed functionally as a distinct social and cultural complex in the contemporary United States. Topics include: mate selection, marriage, adjustment, parenthood, post marriage.
MAN 3010
Management and Organization Behavior: PR: Junior Standing, ACC 2324 or ACC 3003, ECO 2023, ECO 2013. Fundamentals of management showing how the manager in any organization effectively performs the functions of planning, organizing, directing, and controlling.

MAN 3151
Human Behavior and Interpersonal Relations: PR: MAN 3010 or C.I. Human behavior and its effect upon the operation of formal organizations.

MAN 3301
Personnel Management: PR: MAN 3010. An investigation of personnel practices and interpersonal relationships involved in managing employees. Internal problems of labor control and the utilization of human resources are considered.

MAN 3504
Business Operations Management: PR: Junior Standing, ECO 2023, ECO 2013, and ACC 2324. Introduction to the management of the operation of business systems including the creating, service distribution, and governmental functions.

MAN 3705C
Business Concepts: PR: Junior Standing. The relationship of business and society. Discussion sections are devoted to developing the skill of solving organization problems. Not usable for BSBA degree credit.

MAN 4004
Planning and Control: PR: MAN 3010. Emphasizes planning and controlling processes, including statement of organization objectives, development and implementation of an action plan, an evaluation of performance, and required follow-up activities.

MAN 4150
Human Relations in Management: PR: MAN 3010. The individual, interpersonal and group relations and intergroup and organizational problems in business.

MAN 4201
Organization Theory: PR: MAN 3010. Elements in organizations and the processes by which they develop and influence behavior are considered.

MAN 4310
Personnel Problems: PR: MAN 3301. Case studies in personnel problems directed toward the application of personnel management theory and concepts to organization problems.

MAN 4401
Industrial Relations: PR: MAN 3301 or C.I. The impact of trade unionism on industrial relations; current problems, conflicts and trends; the development of managerial approaches to achieve labor-management cooperation.

MAN 4510
Production Management Problems: PR: MAN 3010, MAN 3504 and STA 3023. Problems in the management of industrial enterprise. Management principles and mathematical analysis applied to manufacturing; product development and production; control; employee relations.

MAN 4720
Business Policies: PR: Senior standing, completion of core. The student is expected to utilize the subject matter in the business core and his major in analyzing business problems.

MAN 4722

MAN 4724
Managing Decision Systems: PR: MAN 4722. An introduction to the managerial competencies required to assure effective and efficient operation of a decision system after its installation.

MAN 4794

MAN 5051

MAN 5055
Planning and Control Analysis: PR: Graduate standing and MAN 5051 or equivalent. Emphasizes elements of the planning and control processes including objectives, action programs and control procedures. Discusses integration of the two processes.
MAN 6075
Evolution of Administrative Management: PR: Graduate standing and MAN 5051 or equivalent. The historical development of management in modern society with emphasis in the management process as applied within the economic, social, political, and legal environment.

MAN 6121
Group Decisions and Analysis: PR: Graduate standing and MAN 5051 or equivalent. Experience in company-wide management decision-making by groups using the management game technique. Analysis of the group decision-making process using video tapes.

MAN 6206
Analysis of Organizational Behavior: PR: Graduate standing and MAN 5051 or equivalent. The analysis of human behavior in organizations in terms of the individual, small group, intergroup relationships, and the total organization.

MAN 6721
Business Policy and Responsibility: PR: Graduate standing and all foundation courses or equivalent. Functions and responsibilities of management, motivation of the businessman and factors governing business decisions.

MAN 6814
Operations Research Models for Business: PR: Graduate standing and ECO 5413 or equivalent. Quantitative techniques useful for the solution of business problems. Mathematical model building to aid the decision-making process is stressed.

MAN 6840
Research and Development Management: Graduate standing and MAN 5051 or equivalent. An examination of the function of Research and Development and the impact of technological innovation on our economic and social systems.

MAN 6896
Systems Analysis for Business Problem Solving: PR: Graduate standing and MAN 5051 or equivalent. A conceptual framework of systems approach for analyzing business problems.

MAP 3305

MAP 3401
Problem Analysis: PR: MAC 1104 & MAC 1114 or equivalent. Applications of computational techniques to selected problems in the practice of engineering technology. Problems relating to specific option areas.

MAP 4302
Ordinary Differential Equations I: PR: MAC 3312. First order differential equations; higher order differential equations; applications to mechanical and electrical systems, pursuit curves; Power series solutions and special functions.

MAP 4303
Ordinary Differential Equations II: PR: MAP 4302. Sturm-Liouville boundary value problems; systems of first order equations; Volterra’s prey-predator equations; nonlinear equations; stability; Poincaré-Bendixon theorem; existence and uniqueness of solutions.

MAP 4363
Applied Boundary Value Problems I: PR: MAP 3305 or MAP 4302 or C.I. The eigenvalue problem of Sturm-Liouville; Legendre polynomials and Bessel functions; the method of Green’s functions; Fourier series; applications in engineering and the physical sciences.

MAP 4364
Applied Boundary Value Problems II: PR: MAP 4363 or C.I. Separation of variables; applications involving the wave equation, heat equation and equation of Laplace.

MAP 4411
Laplace Transforms: PR: MAP 3305 or MAP 4302 or C.I. Laplace and Z transforms; solutions of ordinary and partial differential equations; application to circuit analysis and difference equations.

MAP 5405
Engineering Mathematical Analysis: ECM 4114 or C.I. The application of mathematical methods to engineering problems including linear analysis and transformations and matrix manipulation.

MAP 5426
Special Functions: PR: MAP 3305 or C.I. Series and integral representations, generating functions, recurrence relations, and orthogonality properties of the special functions. Emphasis on Bessel, Legendre, hypergeometric functions, other special functions.
MAP 6406   Methods of Mathematical Analysis I: PR: MAC 3314 or equivalent. Calculus of variations, Sturm-Liouville problems, special functions and Fourier series.


MAP 6424   Transform Theory: PR: MAA 5405. Laplace, Fourier, Hankel and other integral transforms, inversion theorems; the Z transform; applications to physical problems.

MAP 6445   Approximation Theory: PR: MAA 4228 or MAA 6212. Normed linear spaces; Weierstrass approximation theorem; Tchebycheff approximation by polynomials; trigonometric approximation; orthogonal expansions and least squares approximations.

MAR 3023   Marketing: PR: Junior standing. ECO 2023, ECO 2013 and ACC 2324 or 3003. Study of functions, institutions and basic problems in marketing of goods and services in our economy.

MAR 3303   Principles of Advertising: PR: Junior standing, ACC 2324, ECO 2023 and ECO 2013. Analysis of field of advertising; techniques, media, organization, and role of research; economic and social aspects of advertising.

MAR 3403   Sales Management: PR: MAR 3023. Emphasis on sales techniques; sales objectives and policies; organization; administration of sales force.

MAR 3503   Consumer Market Behavior: PR: MAR 3023. An analysis of consumer motivation, buying behavior, market adjustment and product innovation. Behavioral aspects of the marketing process from producer to ultimate user or consumer are considered.

MAR 3603   Marketing Models and Logistics: PR: MAR 3023 and ECO 3411. Qualitative and quantitative model building concepts applied to marketing problems with special emphasis on product planning, distribution, promotion strategy, and pricing problems.

MAR 3613   Marketing Research: PR: MAR 3023 and ECO 3411. Study of research procedures and techniques for problem solving in marketing. Concepts are explored and the incorporation of information resources into the management function demonstrated.

MAR 4203   Channels of Distribution Management: PR: MAR 3023. Marketing activities and relationships within distribution channels. Primary attention given to decision making and policy formulations for wholesalers, retailers and integrated marketing institutions.

MAR 4263   International Business Operation: PR: Senior standing or C.I. Major focus upon the problems of managing international business operations through cases emphasizing financial and marketing problems.

MAR 4703   Current Marketing Problems: PR: Senior standing, marketing major, C.I., ACC 2324, ECO 2023 and ECO 2013. Cultural, social, political, economic, and competitive developments and their effect upon marketing activities.

MAR 4713   Marketing Policies and Strategies: PR: MAR 3613 and C.I. Marketing problems and policies are explored with emphasis placed on the decision-making process.

MAR 5055   Marketing Concepts: PR: Acceptance into the graduate program. Study of functions, institutions and basic problems in marketing of goods in the U.S. economy.

MAR 6406   Sales Management and Control: PR: Graduate standing and MAR 5055 or equivalent. Emphasis is placed on the allocation and development of sales territories and the training, motivation, and supervision of a sales force.

MAR 6706   Current Marketing Problems: PR: Graduate standing and MAR 5055 or equivalent. Analysis of marketing problems stemming from broad social, economic, and political developments. Topics treated cover broad classes of marketing institutions.

MAR 6716   Marketing Policy: PR: Graduate standing and MAR 5055 or equivalent. Marketing policy formulation and decision-making with respect to planning, pricing, promotion and distribution.
<table>
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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Credits</th>
<th>Volume</th>
<th>Times</th>
<th>Notes</th>
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<tbody>
<tr>
<td>MAS 3103</td>
<td>Linear Algebra I: PR: MHF 2300. An analysis of finite dimensional</td>
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<td>linear spaces including bases, subspaces, dual spaces, quadratic</td>
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<td>forms, and applications.</td>
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<td>MAS 3104</td>
<td>Linear Algebra II: PR: MAS 3103. Continuation of MAS 3103.</td>
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<td>MAS 3113</td>
<td>Matrices: PR: MAC 3313. Elementary properties of matrices; special,</td>
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<td>real and complex matrices; determinants and inverses; rank and</td>
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<td>systems of equations; transformations; eigenvectors; diagonalization</td>
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<td>quadratic forms.</td>
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<td>MAS 3203</td>
<td>Introduction to Number Theory I: PR: C.I. Divisibility; primes and</td>
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<td>composites; divisors: multiples; Euclid’s algorithm; Diophantine</td>
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<td>equations; module arithmetic; simple continued fractions.</td>
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<td>MAS 3204</td>
<td>Introduction to Number Theory II: PR: MAS 3203. Continuation of MAS</td>
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<td>MAS 4153</td>
<td>Vector and Tensor Analysis: PR: MAC 3314 or C.I. Vector calculus;</td>
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<td>theorems of Green, Gauss and Stokes; introduction to tensors;</td>
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<td>applications in engineering and physical sciences.</td>
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<td>MAS 4301</td>
<td>Algebraic Structures I: PR: MHF 2300. An introduction to the</td>
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<td>properties of groups, rings, polynomial rings, integral domains and</td>
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<td>MAS 4311</td>
<td>Algebraic Structures II: PR: MAS 4301. Continuation of MAS 4301.</td>
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<td>MAS 6158</td>
<td>Tensor Analysis: PR: MAS 3156 or MAA 6212 or equivalent. Contravariant and covariant tensors, metric tensors, geodesics, Christoffel symbols, covariant differentiation, curvature, Ricci tensor, Riemann-Christoffel tensor, and applications of tensors.</td>
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<td>MAS 6321</td>
<td>Modern Applied Algebra: PR: MAC 3314 or equivalent. Modern algebra for computer utilization and design; binary relations, finite state machines, groups, binary group coding, rings and ideals, polynomial codes.</td>
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<td>MAT 1024</td>
<td>Fundamental Algebra: Elementary algebra including factoring, plane</td>
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<td>coordinates, systems of linear equations, exponents and radicals,</td>
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<td>quadratic equations and inequalities, ratio, proportion, and</td>
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<td>logarithms. For those students whose preparation in mathematics is</td>
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<td>noncurrent or insufficient for MAC 1104, 1142, and 1143.</td>
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<td>MCB 2013C</td>
<td>General Microbiology: PR: A college course in chemistry and 8</td>
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<td>hours of biological science. Fundamentals of microbiology,</td>
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<td>microbial morphology, metabolism and laboratory techniques.</td>
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<td>MCB 2043C</td>
<td>Culture Media and Reagents: PR: MCB 2013C. Preparation of differential, selective and enrichment media; reagents used in microbiology; instrumentation used in culture media preparation.</td>
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<td>MCB 3030C</td>
<td>Biology of Microorganisms: PR: MCB 2013C; CR: CHM 3210 or BCH 1023.</td>
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<td>Concepts and experimental methods in microbiology.</td>
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<td>MCB 3203C</td>
<td>Pathogenic Microbiology: PR: MCB 3030C or C.I. Microorganisms</td>
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<td>producing disease in man and other animals; means of</td>
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<td>transmission; protection against disease.</td>
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<td>MCB 4114C</td>
<td>Determinative Microbiology: PR: MCB 3030C. Microbial classification,</td>
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<td>rules of nomenclature, bacterial code and identification of</td>
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<td>MCB 4164C</td>
<td>Diagnostic Microbiology: PR: MCB 3203C. Techniques used in</td>
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<td>identifying bacteria which are pathogenic to man.</td>
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<td>MCB 4404C</td>
<td>Microbial Physiology: PR: MCB 3030C and BCH 4054. Relationship</td>
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<td>between structure and function in</td>
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<td>microorganisms.</td>
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<td>MCB 4603C</td>
<td>Microbial Ecology: PR: PCB 3043 and MCB 3030C. Roles of microbes</td>
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<td>in the environment.</td>
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<td>MCB 4814C</td>
<td>Medical Mycology: PR: MCB 3030C or C.I. Etiology, mycology and</td>
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<td>clinical aspects of fungal induced human diseases.</td>
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</table>
MCC 5205

Infectious Process: PR: MCB 3030C or C.I. Discussion of current theories of the infectious process and the response of cells and tissue to infection.

MCC 5505C

Virology: MCB 3030C and BCH 4054. Nature of viruses and Rickettsiae, including their structure, propagation, isolation and identification. Special project is required.

MCC 6417

Microbial Metabolism: PR: C.I. Relationship between microbial metabolism and principal cellular activities, emphasizing transport, respiration, differentiation, and synthesis.

MGF 1124

Principles of Mathematics: PR: Two years of high school mathematics. Selected topics in mathematics with primary emphasis on developing conceptual understanding and broadening insight into mathematics. Not intended for students in the Colleges of Business Administration, Engineering, or Natural Sciences.

MHC 2300

Logic and Proof in Mathematics: PR: Four years of high school mathematics or equivalent. Basic mathematical logic, methods of proof in mathematics, application of proofs to elementary structures. Primarily for mathematical sciences majors.

MHC 3104

Boolean Algebra: PR: MAC 3313 or C.I. Axiomatic development of Boolean algebra; the algebras of sets, logic and circuits as Boolean algebras.

MHC 4404


MLS 3220

Techniques in Clinical Microscopy: PR: MCB 2013 and C.I. Analysis of human urine and other body specimens, chemically and microscopically; interpretation of abnormal results and their correlation to disease included.

MLS 3305

Hematology: PR: PCB 3703, CHM 2047 or C.I. Diagnostic procedures and morphologic interpretation; correlation of this data to disease.

MLS 3549

Immunohematology and Coagulation: PR: PCB 3703 or C.I. Clinical blood banking and coagulation; antigen-antibody identification, interpretation, correlation of abnormal results to disease.

MLS 3625L

Techniques in Clinical Chemistry: PR: CHM 3211. Laboratory techniques in clinical chemistry; instrumentation emphasized.

MLS 4320C

Advanced Hematology and Coagulation: PR: Admission to the professional phase of the MEDT program or C.I. Formed elements of the blood; platelet function hemostasis, the methodology for studying this mechanism is presented; relationship to the clinical condition of human patients emphasized.

MLS 4406

Clinical Pathogenic Microbiology: PR: Admission to the professional phase of the MEDT program or C.I. Isolation and identification of pathogenic bacteria by culture and serological methods; interpretation of abnormal results; correlation to disease.

MLS 4420C

Clinical Mycology: PR: Admission to the professional phase of the MEDT program or C.I. Instruction and laboratory practice in the isolation and identification of fungi associated with mycotic infections of man.

MLS 4431C

Clinical Parasitology: PR: Admission to the professional phase of the MEDT program or C.I. Instruction and laboratory practice in the examination and study of clinical material for the detection and identification of animal parasites.

MLS 4511

Clinical Serology: PR: Admission to the professional phase of the MEDT program or C.I. Serological methods used in diagnostic studies.

MLS 4550

Clinical Immunohematology: PR: Admission to the professional phase of the MEDT program or C.I. Antigenic structure of red blood cells; related to crossmatching of blood, antibody screening, other blood banking procedures.
MLS 4625C
Advanced Clinical Chemistry I: PR: Admission to the professional phase of the MEDT program or C.I. Practice in clinical chemistry; human enzyme systems, renal function, liver function tests, etc.

MLS 4630C
Advanced Clinical Chemistry II: PR; MLS 4625. Continuation of MLS 4625 to cover hormones, isoenzymes, electrophoresis and toxicology.

MLS 4830C
Clinical Practice I: PR: Admission to the professional phase of the MEDT program or C.I. Rotation in one or more of the following areas: Hematology, Chemistry, Microbiology, Blood Bank, Serology-Coagulation, Clinical Microscopy, Nuclear Medicine.

MLS 4831C
Clinical Practice II: PR: Admission to the professional phase of the MEDT program or C.I. Continuation of MLS 4830C.

MLS 4832C
Clinical Practice III: PR: Admission to the professional phase of the MEDT program or C.I. Continuation of MLS 4831C.

MLS 4833C
Clinical Practice IV: PR: Admission to the professional phase of the MEDT program or C.I. Continuation of MLS 4832C.

MMC 4100
Writing for the Mass Media: PR: Minimum grade of C in JOU 3100. Students write for a certain segment of the mass media of their own choosing. May be repeated for credit.

MMC 4200
Legal Responsibilities of the Mass Media: Legal rights and restrictions, including Constitutional guarantees, libel, invasion of privacy, and contempt of court.

MMC 4300

MMC 4602
Social Responsibilities of the Mass Media: Relationships between the mass media and society; examination of social and ethical responsibilities of the media.

MMC 4608
Mass Communication of Government: Role, responsibilities, and non-legal problems of both the government and press in the process of conveying governmental news to the public.

MMC 4609
Opinion and the Mass Media: Role of the mass media in influencing public opinion, techniques of opinion measurement, and impact of opinion polls on voters.

MMC 4610
Propaganda and Psychological Warfare: Propaganda and psychological warfare principles with a study of the activities engaged by nations.

MMC 4700
Mass Media and Popular Culture: An impact study of mass media upon American culture past to present.

MMC 4945
Communication Internship: PR: C.I. Internship in radio, television, film, journalism, public relations, advertising and speech involving practicum at selected communications organizations for one quarter.

MMC 6301
Comparative International Communication Organizations: A study of the principal mass communication organizations of the world.

MMC 6603
Communication and Society: The importance of communications in societal stress situations, with emphasis on current problems.

MMC 6606
Persuasion in the Media: Study of persuasive campaign with focus upon ethics, methodology, and strategies toward accomplishing the communication end.

MMC 6611
Effects of Advertising on Society: An in-depth study of advertising's effects on consumer behavior, societal mores and media economics.

MMC 6612
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
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<tbody>
<tr>
<td>MRE 3101</td>
<td>Medical Record Administration: An introduction to the profession.</td>
<td>NS 3 (2,2) F</td>
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<tr>
<td>MRE 3110C</td>
<td>Evaluation of Patient Care: PR: MRE 3000 or C.I. Problems oriented medical record; accreditation and certification; release of information; medical staff committees; record content.</td>
<td>NS 5 (3,4) W</td>
</tr>
<tr>
<td>MRE 3202</td>
<td>Coding Procedures: PR: HSC 3531. Classification systems for health information retrieval.</td>
<td>NS 5 (3,4) S</td>
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<tr>
<td>MRE 3210</td>
<td>Health Information Systems: PR: MRE 3000 or C.I. The development of health statistics, registers and indexes and application for evaluation, research and management.</td>
<td>NS 3 (2,2) W</td>
</tr>
<tr>
<td>MRE 3800</td>
<td>Directed Experience I: PR: MRE 3101. Interdepartmental experience in selected health care facilities. Filing quantitative and qualitative record analysis.</td>
<td>NS 1 (0,4) W</td>
</tr>
<tr>
<td>MRE 3810</td>
<td>Directed Experience II: PR: MRE 3800. Application in a health record facility of the principles of filing; quantitative, qualitative record analysis; correspondence; microfilming; coding and indexing procedures.</td>
<td>NS 1 (0,4) S</td>
</tr>
<tr>
<td>MRE 4304</td>
<td>Medical Record Department Management: Analysis and Problem Solving. Management functions in Medical Record Department.</td>
<td>NS 3 (3,0) S</td>
</tr>
<tr>
<td>MRE 4312</td>
<td>Analysis of Medical Record Department Operations: PR: HSC 4162. Forms analysis and control; work distribution and simplification; other evaluation techniques.</td>
<td>NS 3 (2,2) W</td>
</tr>
<tr>
<td>MRE 4400</td>
<td>Health Care Records: PR: MRE 3110 or C.I. Medical record standards and procedures for long term ambulatory, home care, and other health care institutions. Field trips.</td>
<td>NS 5 (3,4) F</td>
</tr>
<tr>
<td>MRE 4410C</td>
<td>Performance Evaluation Procedures: PR: MRE 4312C. Development and use of criteria in medical care evaluation and quality assurance in the medical record department.</td>
<td>NS 3 (2,2) S</td>
</tr>
<tr>
<td>MRE 4420</td>
<td>Health Legislation. PR: MRE 4312C. Current trends in health legislation.</td>
<td>NS 3 (3,0) S</td>
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<tr>
<td>MRE 4830</td>
<td>Directed Experience III: PR: MRE 3810 and HSC 3531. Supervised clinical experience in the medical record department of an approved health care facility. Coding and indexing procedures, medical transcription.</td>
<td>NS 2 (0,8) F</td>
</tr>
<tr>
<td>MRE 4831</td>
<td>Directed Experience IV: PR: MRE 4830. Continuation of MRE 4830.</td>
<td>NS 2 (0,8) W</td>
</tr>
<tr>
<td>MRE 4835</td>
<td>Management Affiliation: Four weeks at a selected health facility serving in an administrative capacity under the direction of a Registered Record Administrator.</td>
<td>NS 4 (0,16) Su</td>
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<tr>
<td>MTG 4212</td>
<td>Modern Geometries I: PR: MAC 3312 or C.I. Axioms for Euclidean geometry, finite geometries, groups of transformations, isometry, motions of three-space convexity in two-space and three-space, Euclidean geometry of polygon and circle.</td>
<td>NS 4 (4,0)</td>
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<tr>
<td>MTG 4213</td>
<td>Modern Geometries II: PR: MTG 4233. Constructible numbers, constructions and impossibility proofs, geometry of inversion, basic projective geometry, duality, harmonic sets, conics, hyperbolic and elliptic geometries.</td>
<td>NS 4 (4,0)</td>
</tr>
<tr>
<td>MTG 4302</td>
<td>Topology I: PR: MHF 2300. Metric spaces; topological spaces, limit points, connectedness, compactness; topology of surfaces; spheres with handles and crosscaps; Euler characteristics; topological invariants.</td>
<td>NS 4 (4,0)</td>
</tr>
<tr>
<td>MTG 4303</td>
<td>Topology II: PR: MTG 4302. Continuation of MTG 4302.</td>
<td>NS 4 (4,0)</td>
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<tr>
<td>MUC 1101</td>
<td>Secondary Performance-Composition: Private and/or class instruction. Credit applicable toward music degree if not in student’s principal performing medium; open to non-music majors. May be repeated for credit.</td>
<td>HFA 1 (1,1) F,W,S,Su</td>
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<td>MUC 3203</td>
<td>Composition: PR: CI By audition. May be repeated for credit. Creative work in large and small forms in the area of choral, instrumental and keyboard media.</td>
<td>HFA 2 (1, 1) F,W,S,Su</td>
</tr>
<tr>
<td>MUE 3401</td>
<td>Music in the Elementary School: Fundamental procedures for teaching elementary school music, stressing appropriate music materials and activities for different age groups; selected experiences in music.</td>
<td>ED 4 (2,2) F,W,S,Su</td>
</tr>
</tbody>
</table>
MUE 4314
Music Education Instruction in Schools: PR: EDF 3603 or C.I. Organization and administration of instruction of the comprehensive music education program, K-12; evaluation procedures and materials; concurrent laboratory experiences, consideration of vocal and instrumental program. LAB TBA.

MUE 4330
Elementary School Music Instructional Analysis: PR: EDF 3603, MUE 4314, or C.I. Instructional planning, techniques and materials in elementary school classrooms; sources of information; interrelationships with curriculum.

MUE 4350
Secondary School Music Instructional Analysis: PR: EDF 3603, MUE 4314, or C.I. Instructional planning, techniques, and materials in middle, junior, and senior high school classrooms; consideration of general music education program.

MUE 4480

MUE 5611
Trends in Elementary School Music Education: PR: MUE 3401 or equivalent, or C.I. Advanced study of instructional strategies and materials; integration of music education experiences with classroom activities; personal musical skill development; current research and new curricula.

MUE 6080
Foundations of Music Education: PR: Rank III Certificate or C.I. Examination of historical, philosophical and psychological foundations of Music Education.

MUE 6370
Teaching Musicianship: PR: C.I. Materials and procedures in presenting aural and visual aspects of music; evaluation procedures.

MUE 6610
Current Trends in Elementary School Music: PR: Rank III Certificate or C.I. Analysis of current materials, new programs and teaching techniques in elementary school music, emphasis on practical applications.

MUE 6630

MUE 6938
Problems in Music Education: PR: Rank III Certificate or C.I. A seminar approach for developing solutions to contemporary problems in music education. Current readings will be included.

MUG 3201
Choral Conducting: PR: C.I Fundamental principles of choral conducting and rehearsal techniques. May be repeated for credit.

MUG 3301
Instrumental Conducting: Fundamental principles of instrumental conducting and rehearsal techniques. May be repeated for credit.

MUL 3011
Enjoyment of Music: Only non-majors. Designed to develop an understanding of musical principles and techniques for listening to music.

MUL 3401
Piano Literature: PR: C.I. Survey of stringed keyboard literature from the sixteenth century to the present with emphasis on technical, formal and performance problems.

MUL 3402
Piano Literature: PR: MUL 3401. Continuation of MUL 3401.

MUL 3403

MUL 3622
Song Literature: PR: C.I. Survey of the development of the art song from the Middle Ages to the present with emphasis on technical, formal and performance problems.

MUL 3624
Song Literature: PR: MUL 3622. Continuation of MUL 3622.

MUL 3625
Song Literature: PR: MUL 3624. Continuation of MUL 3624.

MUL 3670
MUN 3120
Major Performing Organizations: PR: C.I. Open to all students. Study and performance of music for large ensembles. May be repeated for credit.

HFA 1 (0,4) F,S,W,Su

MUN 3280
Major Performing Organizations: PR: C.I. Open to all students. Study and performance of music for large ensembles. May be repeated for credit.

HFA 1 (0,4) F,S,W,Su

MUN 3310
Major Performing Organizations: PR: C.I. Open to all students. Study and performance of music for large ensembles. May be repeated for credit.

HFA 1 (0,4) F,S,W,Su

MUN 3460
Chamber Music Ensembles: PR: C.I. Open to all students. Study and performance of music for small ensembles. May be repeated for credit; credit not applicable toward music degree.

MUS 1011
Music Forum: A series of special musical events required of music majors. Includes lectures and recitals by faculty, students, and guest artists.

MUS 2111
Music Theory: Required of music majors; writing, performance, analysis of music of various stylistic periods.

HFA 3 (3,0) F

MUS 2112
Music Theory: PR: MUS 2111. Continuation of MUS 2111.

HFA 3 (3,0) W

MUS 2113

HFA 3 (3,0) S

MUS 3121
Music Theory: PR: MUS 2113. Required of music majors; continuation of MUS 2111-2113; writing, performance, and analysis of music of various stylistic periods.

HFA 3 (3,0) F

MUS 3122
Music Theory: PR: MUS 3121. Continuation of MUS 3121.

HFA 3 (3,0) W

MUS 3123
Music Theory: PR: MUS 3122. Continuation of MUS 3122.

HFA 3 (3,0) S

MUS 3670
Music in Society: Social functions of music and its relationship with other arts.

HFA 3 (0,3) F,W,S,Su

MUS 4131
History and Literature: PR: MUS 2113. Required of music majors. In depth study of the development of Western musical styles from antiquity to the present.

HFA 3 (3,0) F

MUS 4132
History and Literature: PR: MUS 3121. Continuation of MUS 4131.

HFA 3 (3,0) W

MUS 4133
History and Literature: PR: MUS 3122. Continuation of MUS 4132.

HFA 3 (3,0) S

MUS 4401
Studio Teaching: PR: C.I. Management of the music studio; responsibilities and techniques of private instruction for the studio teacher; principles of psychology of music. May be repeated for credit.

HFA 2 (1,1) F

MUS 4905
Directed Experience: PR: C.I. Required of music majors; experience in communicating music under qualified teachers. Credit determined by number of hours assigned per week. May be repeated.

HFA 1,6 (0,3-13) F,W,S,Su

MUS 5151
Graduate Musicianship: PR: C.I. The study of music from various style periods; writing, performance, and analysis of music; may be repeated for credit.

HFA 3

MUT 1210
Secondary Performance—Ear Training I: Aural comprehension of elements of music—rhythm, melody, harmony, form.

HFA 1 (1,1) F,W,S,Su

MUT 1211
Secondary Performance—Ear Training II: Aural comprehension of elements of music—rhythm, melody, harmony, form. Continuation of Ear Training I.

HFA 1 (1,1) F,W,S,Su

MUT 1212
Secondary Performance—Ear Training III: Aural comprehension of elements of music—rhythm, melody, harmony, form. Continuation of Ear Training II.

HFA 1 (1,1) F,W,S,Su

MUT 1221
Secondary Performance—Sight Singing I: Private and/or class instruction. Credit applicable toward music degree if not in student’s principal performing medium; open to non-music majors. May be repeated for credit.

HFA 1 (1,1) F,W,S,Su
Secondary Performance—Sight Singing II: Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance—Sight Singing III: Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

Seminar: Arranging and Transcription: PR: C.J. Scoring for band, orchestral and choral groups. May be repeated for credit.

Secondary Performance—Brass Class: Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance—Brass (Trumpet): Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance—Brass (Horn): Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance—Brass (Trombone): Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance—Baritone Horn: Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance—Brass (Tuba): Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

Principal Performance I—Brass (Trumpet): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

Principal Performance I—Brass (Horn): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

Principal Performance I—Brass (Trombone): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

Principal Performance I—Brass (Baritone Horn): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

Principal Performance I—Brass (Tuba): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

Principal Performance II—Brass (Trumpet): PR: Necessary competence level determined by faculty jury. Applicable courses required of music majors. May be repeated for credit.

Principal Performance II—Brass (Horn): PR: Necessary competence level determined by faculty jury. Applicable courses required of music majors. May be repeated for credit.

Principal Performance II—Brass (Trombone): PR: Necessary competence level determined by faculty jury. Applicable courses required of music majors. May be repeated for credit.
Principal Performance II—Brasses (Baritone): PR: Necessary competence level determined by faculty jury. Applicable courses required of music majors. May be repeated for credit.

Principal Performance II—Brasses (Tuba): PR: Necessary competence level determined by faculty jury. Applicable courses required of music majors. May be repeated for credit.

Principal Performance III—Brasses (Trumpet): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury. Applicable courses required of music majors. May be repeated for credit.

Principal Performance III—Brasses (Tuba): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury. Applicable courses required of music majors. May be repeated for credit.

Principal Performance III—Brasses (Horn): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury. Applicable courses required of music majors. May be repeated for credit.

Principal Performance III—Brasses (Trombone): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury. Applicable courses required of music majors. May be repeated for credit.

Principal Performance IV—Brasses (Baritone): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

Principal Performance IV—Brasses (Tuba): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

Principal Performance IV—Brasses (Baritone Horn): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

Primary Performance IV—Brasses (Tuba): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.
MVB 5352
Principal Graduate Performance-Brasses (Horn): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVB 5353
Principal Graduate Performance-Brasses (Trombone): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVB 5354
Principal Graduate Performance-Brasses (Baritone): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVB 5355
Principal Graduate Performance-Brasses (Tuba): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVK 1111
Class Piano I: Class instruction for beginning piano students. Not open to music majors whose major performing medium is piano. May be repeated for credit.

MVK 1121
Class Piano II: PR: MVK 1111 or C.I. Not open to music majors whose major performing medium is piano. May be repeated for credit.

MVK 1131
Class Piano III: PR: MVK 1121 or C.I. Preparation for the piano proficiency examination. May be repeated for credit.

MVK 1141
Class Piano IV: PR: MVK 1131 or C.I. Individualized instruction. Credit applicable toward music degree by non-piano majors; open to non-music majors. May be repeated for credit.

MVK 1211
Secondary Performance-Piano: Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

MVK 1213
Secondary Performance-Organ: Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

MVK 2311
Principal Performance I-Piano: PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVK 2313
Principal Performance I-Organ: PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVK 3321
Principal Performance II-Piano: PR: Necessary competence at MUSIC 2300 level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVK 3323
Principal Performance II-Organ: PR: Necessary competence at MUSIC 2300 level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVK 4331
Principal Performance III-Piano: PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVK 4333
Principal Performance III-Organ: PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVK 4341
Principal Performance IV-Piano: PR: Necessary competence at MUSIC 4330 level determined by faculty jury. Required of music majors. May be repeated for credit.

MVK 4343
Principal Performance IV-Organ: PR: Necessary competence at MUSIC 4330 level determined by faculty jury. Required for music majors. May be repeated for credit.

MVK 4640
Piano Pedagogy I: PR: C.I. Methods, materials for teaching individuals and classes of children and adults beginning to intermediate levels; demonstration and observation of procedures. May be repeated for credit.
Piano Pedagogy II: PR: C.I. Continuation of MVK 4640. Emphasis on intermediate through advanced levels. May be repeated for credit.

Secondary Graduate Performance-Piano: PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

Secondary Graduate Performance-Organ: PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

Principal Graduate Performance-Piano: PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

Principal Graduate Performance-Organ: PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

Secondary Performance-Recorder: Private and/or class instruction. Credit applicable toward music degree if not in student’s principal performing medium; open to non-music majors. May be repeated for credit.

Recorder I: Open to all non-music students. Class instruction in beginning recorder playing.

Recorder II: Class instruction in advanced recorder solo and ensemble playing. PR: Open to music students; and non-music students who have taken MVO 3114 and C.I.

Secondary Performance-Percussion: Private and/or class instruction. Credit applicable toward music degree if not in student’s principal performing medium; open to non-music majors. May be repeated for credit.

Principal Performance I-Percussion: PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

Principal Performance II-Percussion: PR: Necessary competence at MUSIC 2300 level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

Principal Performance III-Percussion: PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

Principal Performance IV-Percussion: PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

Secondary Graduate Performance-Percussion: PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

Principal Graduate Performance-Percussion: PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

Secondary Performance-String Class: Private and/or class instruction. Credit applicable toward music degree if not in student’s principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance-Strings (Violin): Private and/or class instruction. Credit applicable toward music degree if not in student’s principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance-Strings (Viola): Private and/or class instruction. Credit applicable toward music degree if not in student’s principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance-Strings (Cello): Private and/or class instruction. Credit applicable toward music degree if not in student’s principal performing medium; open to non-music majors. May be repeated for credit.

Secondary Performance-Strings (Bass): Private and/or class instruction. Credit applicable toward music degree if not in student’s principal performing medium; open to non-music majors. May be repeated for credit.

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MVS 1216  
Secondary Performance-Guitar: Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

MVS 2311  
Principal Performance I-Strings (Violin): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVS 2312  
Principal Performance I-Strings (Viola): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVS 2313  
Principal Performance I-Strings (Cello): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVS 2314  
Principal Performance I-Strings (Bass): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVS 2325  
Principal Performance I-Guitar: PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVS 3321  
Principal Performance II-Strings (Violin): PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVS 3322  
Principal Performance II-Strings (Viola): PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVS 3323  
Principal Performance II-Strings (Cello): PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVS 3324  
Principal Performance II-Strings (Bass): PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVS 3336  
Principal Performance II-Guitar: PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVS 4331  
Principal Performance III-Strings (Violin): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVS 4332  
Principal Performance III-Strings (Viola): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVS 4333  
Principal Performance III-Strings (Cello): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVS 4334  
Principal Performance III-Strings (Bass): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVS 4341  
Principal Performance IV-Strings (Violin): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

MVS 4342  
Principal Performance IV-Strings (Viola): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

MVS 4343  
Principal Performance IV-Strings (Cello): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

MVS 4344  
Principal Performance IV-Strings (Bass): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.
MVS 4346 
Principal Performance III - Guitar: PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

MVS 5251 
Secondary Graduate Performance - Strings (Violin): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVS 5252 
Secondary Graduate Performance - Strings (Viola): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVS 5253 
Secondary Graduate Performance - Strings (Cello): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVS 5254 
Secondary Graduate Performance - Strings (Bass): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVS 5351 
Principal Graduate Performance - Strings (Violin): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVS 5352 
Principal Graduate Performance - Strings (Viola): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVS 5353 
Principal Graduate Performance - Strings (Cello): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVS 5354 
Principal Graduate Performance - Strings (Bass): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVV 1211 
Secondary Performance - Voice: Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

MVV 2311 
Principal Performance I - Voice: PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVV 3321 
Principal Performance II - Voice: PR: Necessary competence at MUSIC 2300 level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVV 4331 
Principal Performance III - Voice: PR: Satisfactory piano proficiency examination and necessary competence at MUSIC 4330 level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVV 4341 
Principal Performance IV - Voice: PR: Necessary competence at MUSIC 4330 level determined by faculty jury. Required of music majors. May be repeated for credit.

MVV 4640 
Voice Pedagogy I: PR: C.I. Methods, materials for vocalists; teachers, conductors; voice production; diagnosis of problems and corrections; demonstration and observation of teaching; beginning to intermediate levels. May be repeated for credit.

MVV 4641 
Voice Pedagogy II: PR: C.I. Continuation of MVV 4640. Intermediate to advanced levels. May be repeated for credit.

MVV 5251 
Secondary Graduate Performance - Voice: PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVV 5351 
Principal Graduate Performance - Voice: PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.
MVW 1211  
Secondary Performance-Woodwinds (Flute): Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

MVW 1212  
Secondary Performance-Woodwinds (Oboe): Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

MVW 1213  
Secondary Performance-Woodwinds (Clarinet): Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

MVW 1214  
Secondary Performance-Woodwinds (Bassoon): Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

MVW 1215  
Secondary Performance-Woodwinds (Saxophone): Private and/or class instruction. Credit applicable toward music degree if not in student's principal performing medium; open to non-music majors. May be repeated for credit.

MVW 2311  
Principal Performance I-Woodwinds (Flute): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVW 2312  
Principal Performance I-Woodwinds (Oboe): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVW 2313  
Principal Performance I-Woodwinds (Clarinet): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVW 2314  
Principal Performance I-Woodwinds (Bassoon): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVW 2315  
Principal Performance I-Woodwinds (Saxophone): PR: Faculty jury. Applicable courses required of music majors; private and class lessons. May be repeated for credit.

MVW 3321  
Principal Performance II-Woodwinds (Flute): PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 3322  
Principal Performance II-Woodwinds (Oboe): PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 3323  
Principal Performance II-Woodwinds (Clarinet): PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 3324  
Principal Performance II-Woodwinds (Bassoon): PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 3325  
Principal Performance II-Woodwinds (Saxophone): PR: Necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 4331  
Principal Performance III-Woodwinds (Flute): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 4332  
Principal Performance III-Woodwinds (Oboe): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 4333  
Principal Performance III-Woodwinds (Clarinet): PR: Satisfactory piano proficiency examination and neces-
sary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 4334
Principal Performance III-Woodwinds (Bassoon): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 4335
Principal Performance III-Woodwinds (Saxophone): PR: Satisfactory piano proficiency examination and necessary competence level determined by faculty jury applicable courses required of music majors. May be repeated for credit.

MVW 4341
Principal Performance IV-Woodwinds (Flute): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

MVW 4342
Principal Performance IV-Woodwinds (Oboe): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

MVW 4343
Principal Performance IV-Woodwinds (Clarinet): PR: Necessary competence level determined by faculty jury. Required of music majors. May be repeated for credit.

MVW 5251
Secondary Graduate Performance-Woodwinds (Flute): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVW 5252
Secondary Graduate Performance-Woodwinds (Oboe): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVW 5253
Secondary Graduate Performance-Woodwinds (Clarinet): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be reported for credit.

MVW 5254
Secondary Graduate Performance-Woodwinds (Bassoon): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVW 5255
Secondary Graduate Performance-Woodwinds (Saxophone): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVW 5351
Principal Graduate Performance-Woodwinds (Flute): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVW 5352
Principal Graduate Performance-Woodwinds (Oboe): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVW 5353
Principal Graduate Performance-Woodwinds (Clarinet): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVW 5354
Principal Graduate Performance-Woodwinds (Bassoon): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

MVW 5355
Principal Graduate Performance-Woodwinds (Saxophone): PR: C.I. Amount of credit determined by audition. May include both principal and secondary performance areas. May be repeated for credit.

OCE 1012
Oceanography and Space: Fundamentals of oceanography and space with emphasis on the engineering aspects and uses. May be used to satisfy Scientific Environment requirement of Environmental Studies Program.
ORI 2001 SS 3 (3,0) F,W,S
Interpretation I: Analysis of thought, development of imagination; oral presentation of literary forms. (Recommended for students majoring in English and preparing to teach literature).

ORI 3002 SS 3 (3,0)
Interpretation II: ORI 2001 or C.I. Selecting and abridging literary material for platform use; preparation and presentation of program for special and general occasions.

ORI 3210 SS 3 (3,0)

PAD 3003 SS 4 (4,0) F,W
Introduction to Public Administration: PR: C.I. Analysis of administrative theories and the process of implementing public policies in a democratic society.

PAD 4034 SS 4 (4,0)
Public Policy Administration: Problems of values, interest, and objectives and their impact on execution of public programs, stressing the relationship between policies and administration.

PAD 4204 SS 4 (4,0)
Fiscal Management: PR: C.I.-Analysis of methods of securing public funds, the process of budgetmaking, and techniques of management used in managing public funds.

PAD 4603 SS 4 (4,0)
Legal Aspects of Public Administration: PR: C.I. A study of major legal problems facing the public administrator, especially at state and local levels.

PAD 4803 SS 4 (4,0) F
Metropolitan Administration: PR: PAD 3003 or C.I. Study of the formal and informal sociopolitical structures that govern urban areas; emerging patterns of government, and management practices in urban and suburban settings.

PAD 4834 SS 4 (4,0)
Comparative Public Administration: PR: C.I. An analysis of administrative structures and processes of selected countries, the influence of economic, social and political environment on bureaucratic functions.

PAD 4940 SS 6-12 (0,12)
Public Administration Internship: PR: C.I. Internship in municipal, county, state or federal government, including assignments in such fields as personnel, planning, budget and fiscal, procurement and public safety.

PAD 5807 SS 4 (4,0)
Administrative Practice in the Public Sector: PR: PAD 3003, or C.I. Senior or graduate standing. This course focuses on the process of policy formulation and execution in public agencies, planning, staffing, budgeting and program assessment.

PAD 6037 SS 4 (4,0)
Bureaucracy and Public Policy: PR: C.I. A critical examination of the bureaucracy and the impact of bureaucratic behavior on public administration.

PAD 6127 SS 4 (4,0)
Choice Theory: PR: C.I. Analysis of rational choice theories, game theoretic models, incremental decision making, with applications to problems of strategy and politics.

PAD 6227 SS 4 (4,0)
Budgeting as a Policy and Program Instrument: PR: C.I. Budgets as planning programming documents, stressing the relationships of policy and budgetary decisions, problems in grantsmanship and revenue decision making, program budgeting, PPBS, and incrementalism.

PAD 6307 SS 4 (4,0)
Policy Analysis and Administration: PR: C.I. Program analysis and organization structure as policy tools, examining the implementation of differential policy and the administrator as policy maker and change agent.

PAD 6310 SS 4 (4,0)
Planning and Organization for Economic and Social Development: PR: C.I. The purpose and use of economic and social planning, examining theories of development, regional analysis, methods and administration of planning, and evaluation of plan performance.

PAD 6934 SS 4 (4,0)
Issues in Public Administration: PR: C.I. Analysis of both substantive and theoretical issues confronting the broad spectrum of contemporary public administration; consideration of the "new public administration" movement.

PCB 3023C NS 5 (3,4) S
PCB 3043C  
**Principles of Ecology:** 12 hours in biological sciences. Elements of ecosystems, biogeochemical cycling, environmental factors, interactions, population dynamics and evolution communities, and succession. 

PCB 3063C  
**Genetics:** PR: BSC 1010. Basic principles of heredity as applied to plants and animals. Laboratory will emphasize work with Drosophila. 

PCB 3233  
**Immunology:** PR: BSC 1010. Basic principles of the immune reaction, antigens antibody formation, hypersensitivity and auto-immunity. 

PCB 3663  
**Genetics and Man.** PR: HSC 1020 or BSC 1010. Basic principles of genetics as illustrated by human heredity. Meets ESP requirements; designed for non-majors. 

PCB 3703C  
**Human Physiology:** PR: BSC 1010 or equivalent. The physiology and interrelationships of organ systems of the human body. 

PCB 4183C  
**Microtechnique:** PR: 1 yr. biology. Preparation of plant and animal tissue for microscopic study. 

PCB 4303C  
**Freshwater Systems:** PR: PCB 4304 or C.I. Primary and secondary productivity and interaction among factors such as nutrients, pollutants, temperature radiation, turbidity, and seasons. 

PCB 4304C  
**Limnology:** PR: PCB 3043 or C.I. Introduction to principles of limnology and methods for freshwater ecology with respect to physical, chemical and biological parameters. 

PCB 4443C  
**Community Ecology:** PR: PCB 3043 and STA 3023; or C.I. Emphasis on dynamics of biotic communities, plant community classification and quantitative description. 

PCB 4647  
**Organic Evolution:** PR: 11 hours in biology including PCB 3063C. Evolutionary principles, natural selection and phylogeny; origin of variation and of species. 

PCB 4723  
**Animal Physiology:** PR: PCB 3023 or C.I. Functions of body processes occurring in animals with emphasis on vertebrate physiology. 

PCB 5305C  
**Ecology of Running Water:** PR: PCB 4304 or C.I. Biological adaptations and communities in relation to channel formation, flow dynamics, and physico-chemical aspects of running waters. 

PCB 5585  
**Genetic Mechanisms:** PR: PCB 3063 or C.I. Principles of cytological, developmental, human and population genetics. 

PCB 5675  
**Evolutionary Biology:** PR: PCB 3043 and PCB 3063 or C.I. Review of concepts in evolutionary biology. Emphasis on evolution at and below the species level; consideration of genetics and ecological factors in divergence and speciation. 

PCB 5806  
**Endocrinology:** PR: PCB 4723 and BCH 4053 or C.I. Mechanisms of action of hormones; interrelationships between the nervous and endocrine systems. 

PCB 6049  
**Contemporary Studies in Biology:** PR: Graduate standing. Analysis of current publications and developments in theory and concepts of biological sciences. May be repeated for credit as content is variable. 

PCB 6206  
**Molecular Biology:** PR: BCH 4054 or C.I. A course which considers the molecular basis of cellular structures and their functions. Emphasis on current information and research in the area of bioenergetics, cellular regulation, and cellular specialization. 

PCB 6256  
**Developmental Biology:** PR: 12 hours Biology or C.I. Growth and development in plants, animals and protista: stressing patterns and mechanisms.

Organismal Physiology: PR: PCB 3023 or C.I. Modern experimental methods and detailed study of specific phases of the physiology of higher vertebrates.

Counseling Practicum: PR: Graduate admission and C.I. Application of counseling techniques in a supervised setting.

Beginning Golf: Development of basic golf skills - A study of performance and application of basic skills, rules, and etiquette. Physiological and social values accruing from the carryover sport.

Beginning Tennis: Development of basic tennis skills - A study of performance and application of basic skills, rules, and etiquette. Physiological and social values accruing from the carryover sport.

Advanced Golf: PR: PEL 2121C or equivalent competency. Development of advanced golf skills. A study of performance and application of advanced skills, rules, and etiquette. Physiological and social values accruing from the carryover sport.

Advanced Tennis: PR: PEL 2341C or equivalent competency. Development of advanced tennis skill. A study of performance and application of advanced skills, rules, etiquette, physiological and social values accruing from this carryover sport.

Body Development: PR: PEM 3153C or equivalent competency. An in-depth study of individual physical (musculo-skeletal, neuromuscular, cardiorespiratory) fitness. Emphasis on individual diagnosis, principles, procedures, and the conduct of related exercise programs.

Equine (horse) Management: Practical study of horse management. Physiology and anatomy of the horse in relation to lameness care, digestive system, nutrition, first aid, preventive medicine, and parasites.

Actualization of Physical Potential in Contemporary Living. Factors underlying physical potential. Self physical assessment, values of physical activity, self-improvement, contemporary problems, body awareness, body mechanics, family responsibilities. Development of individual program.

Elementary Swimming: For non-swimmers and beginning swimmers. Development and study of technique in the basic skills of water safety and swimming.

Advanced Swimming: PR: PEN 1121C or equivalent competency. Development and study of advanced swimming techniques, endurance in basic water safety and swimming skills; intermediate technique and endurance in a wide variety of ancillary skills.

Aquatics: PR: Pen 2123C or equivalent competency. Development and study of techniques and principles of aquatic swimming activities—safety, strokes, fitness, water polo, synchronized swimming, skin diving, springboard diving, canoeing, and family instruction methods.

Life Saving: Instruction, training and certification in basic life saving swimming skills.

Scuba Diving: Instruction, training and certification in basic diving skills with self-contained underwater breathing apparatus. Students may be required to supply their own equipment.

Instructional Analysis in Team Sports: PR: Sophomore standing. Analysis of neuromuscular performances and optimal approach to specific learning patterns in team sports.

Instructional Analysis in Golf: PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific learning patterns.
PEO 3341C  ED 2 (1,1) F,W,S,Su
Instructional Analysis in Tennis: PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific motor learning patterns.

PEP 3201C  ED 2 (1,1) F,S
Instructional Analysis in Gymnastics and Tumbling: PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific motor learning patterns.

PEP 3421C  ED 2 (1,1) F,S
Instructional Analysis in Wrestling (M): PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific learning patterns.

PEQ 3101C  ED 2 (1,1) F,W,S,Su
Instructional Analysis in Aquatics: PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific motor learning patterns.

PEQ 3115C  ED 3 (2,2) Su
Water Safety Instruction: PR: PEN 3113C or equivalent competency. Methods of teaching water safety. Includes practical application and certification.

PET 3420  ED 3 (3,0)
Physical Education and the Total School Program: PR: EDF 3603 and either EDF 2116 or 3255. Analysis of the teaching of Physical Education as it relates to the functions of the total school program, including a component in instructional media.

PET 3450C  ED 3 (3,0) F,S
Physical Education Instructional Analysis: PR: EDF 3603 and either EDF 2116 or 3255. Study of course objectives for the high school curriculum and survey of methods and materials having special application for teaching Physical Education.

PET 3453  ED 3 (2,1) F,W,S,Su

PET 3461C  ED 3 (3,0) F,W,S,Su
Teaching Physical Education in the Elementary School: PR: EDF 3603 and either EDF 2116 or 3255. Organization, practice and conduct of elementary school physical education with emphasis on teaching methods.

PET 4144  ED 3 (3,0) W,Su
Coaching Problems: PR: PET 3453. Identification, analysis, and evaluation of problems in athletic coaching.

PET 4230C  ED 4 (2,3) F,S,Su
Human Performance Learning: PR: EDF 3255 or equivalent. Theories of movement and factors influencing the learning of gross and fine motor skills. (Lecture/laboratory.)

PET 4340C  ED 3 (2,2) F,W,S,Su

PET 4370C  ED 4 (2,2) F,W,S,Su

PET 4371C  ED 4 (2,2) F,W,S,Su
Exercise Physiology—Respiratory: PR: ZOO 3733 and PET 4370C. A study of metabolic costs and respiratory adjustment to exercise.

PET 4410  ED 3 (3,0) F,W,S,Su
Organization and Administration of Physical Education: PR: PET 3461C or 3450C. Administering and organizing for instruction of the physical education class and the total school physical education program.

PET 4510C  ED 3 (3,0) W,Su
Measurement and Evaluation in Physical Education: PR: Jr. standing and completion of Phase I. Techniques of Measurement and evaluation in Physical Education.

PET 4620C  ED 3 (2,1) F,S,Su
Rehabilitation Training Techniques: PR: PET 4340C. Recognition and rehabilitation of sports injuries, including first aid.

PET 4640  ED 3 (2,1) Su
Adapted Physical Education: PR: PET 4340C and PET 4371C. Principles and methods for adapting physical education activities and programs for atypical participants. Nature of typical specific disabilities.

PET 5149  ED 3 (3,0)
Professional Coaching Problems: PR: Rank III Certificate or C.I.A. seminar approach to problems and methods of coaching, including analysis of various philosophies.

PET 6061C  ED 3 (2,1)
Kinesiologic Analysis of Individual Activities: PR: Rank III Certificate or C.I. Analytical techniques and their methods of application to individual motor activities.
PET 6062C
Kinesiological Analysis of Team Activities: PR: Rank III Certificate or C.I. Analytical techniques of kinesiology and their methods of application to team motor activities.

PET 6146
Current Trends in Physical Education: PR: Rank III certificate or C.I. A comprehensive review of the literature influencing trends in physical education.

PET 6165
Philosophical Foundations of Physical Education: PR: Rank III Certificate or C.I. Analysis of the forces and events leading to the development of current concepts in physical education.

PET 6235C

PET 6285C
Perceptual Motor Development: PR: EDF 6120 or C.I. Study of the relationship between perceptual motor development and learning. Special attention is given to the effects on academic achievement and reading.

PET 6378C
Physiology of Exercise—Environmental: PR: Rank III Certificate or C.I. A study of physiological adaptation resulting from prescribed physical activity programs.

PET 6415
Administration in Physical Education: PR: Rank III Certificate or C.I. Study of current problems in the administration of school physical education programs.

PET 6425
Organization and Design of Physical Education Programs: PR: Rank III Certificate or C.I. Study of physical education and its existing organization. Emphasis on ethics, values, principles and issues.

PET 6516C
PET 6908
Special Readings: PR: EDF 6432 and C.I. Comprehensive review of literature related to a selected topic in physical education: identification, analysis, and evaluation of developments, issues, and research problems.

PHH 3100
Ancient Philosophy: Foundations of Western philosophy in ancient Greek thinking about man and nature, including the pre-Socratics, Socrates, Plato, Aristotle.

PHH 3430
Medieval and Early Modern Philosophy: Faith, reason and skepticism in the development of philosophy from the Scholastics to Hume; Continental Rationalism and British Empiricism.

PHH 3440
Late Modern Philosophy: Relativism and atheism in the development of philosophy from Kant to Nietzsche; the challenge of science and religion to philosophy.

PHH 3600

PHI 1100
Critical Thinking: An examination of fallacies and other logical abuses in conjunction with an analysis of traditional modes in an attempt to encourage meaningful thought and usage.

PHI 2010
Introduction to Philosophy: Inquiry into the meaning and justification of fundamental ideas and beliefs concerning reality, knowledge, and values; application to relevant topics in ethics, religion, and politics.

PHI 2130
Formal Logic I: Analysis of logical form and of procedures used in deductive inference, of the kind underlying mathematical reasoning.

PHI 3131
Formal Logic II: PR: PHI 2130. Systematic study of propositional and first-order predicate logic; logistic systems and axiomatic methods; problems of metatheory, including consistency, completeness and decidability.

PHI 3600
Ethics: An examination of the nature of moral problems, judgements and principles with an emphasis on recent formulations in ethical theory.

PHI 3630
Practical Moral Dilemmas: Probes practical moral problems arising out of advancements and complexities in modern professional life. Considers one or more of the following: medicine, business, technology, law.

PHI 3800
Aesthetics: An investigation into the nature of human artistic experience with special reference to the problems of creativity.

PHI 4400
Philosophy of Science: An examination of the conceptual foundations and methodology of modern science.

PHI 4700
Philosophy of Religion: An examination of basic ideas, beliefs, attitudes and functions of religion; the significance of religion in human experiences.

PHM 3350
Marxist Philosophy: A study of the philosophy of Karl Marx and its development by Engles, Lenin and other Marxists, with attention to contemporary perspectives.

PHM 4100
Social Philosophy: Philosophical analysis and evaluation of selected issues arising from interaction of the individual, society, and the state.

PHP 3786
Existentialism: Study of existentialist analysis and criticism of the human situation as found in the writings of such philosophers as Kierkegaard, Nietzsche, Heidegger, Sartre, and Camus.

PHS 3151
NS 4 (3,2) S
Computer Methods in Physics I: PR: PHY 2040 and COP 1110 or C.I. Nonanalytical problems in physics and astronomy, supplementary to the PHY 2040, 2041, 2042 sequence, solved by approximation with computer assistance.

PHS 3805
Physical Basis of Music: Lectures, demonstrations, student activity; covers topics in wavemotion, acoustics of musical instruments, musical scales, timbre, architectural acoustics, human ear, sound reproduction. Satisfies Advanced ESP.

PHS 4152
Computer Methods in Physics II: PR: PHY 3043 and COP 1110 or C.I. Examples and problems in physics from
classical mechanisms, electromagnetic theory and wave mechanics are solved using numerical techniques with computer assistance.

PHS 4250
Biophysics: PR: BSC 1010 and PHY 2051 or C.I. Physics of biosystems, viewed as optical control systems with constraints imposed by energy transfer mechanisms and examined by considering energy, information and cybernetics.

PHS 4303
Nuclear Physics: PR: PHY 3046 or C.I. Nuclear force, structure, moments, and models. Alpha decay, beta decay, gamma-ray emission, nuclear reactions and applications of nuclear physics.

PHS 4404
Solid State Physics: PR: PHY 3046 or C.I. Properties of solids, crystal binding, free electron model, band theory of solids, Fermi surface, and solid state applications.

PHY 2040
General Physics I: PR: High school physics or PSC 1512 or C.I. CR: MAC 3311. Basic principles of classical mechanics, thermodynamics, electricity, magnetism, optics and modern physics.

PHY 2041
General Physics II: PR: PHY 2040; CR: MAC 3312. Continuation of PHY 2040.

PHY 2041L
General Physics Laboratory I: PR: PHY 2040. Laboratory experimentation and instruction covering selected topics in physics.

PHY 2042

PHY 2042L
General Physics Laboratory II: PR: PHY 2041 or C.I. Continuation of physics laboratory instruction.

PHY 2050C
College Physics I: PR: Two years of high school mathematics. Lectures and laboratory experiments, with special application to life sciences: mechanics, thermodynamics, electricity, magnetism, optics, sounds, quantum and nuclear physics.

PHY 2051C
College Physics II: PR: PHY 2041 or C.I. Continuation of College Physics sequence.

PHY 3014C
Project Physics I: "Hands-on" lecture-laboratory course, particularly for Elementary Education majors and prospective Junior High science teachers. Topics range from naked-eye astronomy to radio active dating.

PHY 3015C
Project Physics II: PR: PHY 3014 or C.I. Continuation of Project Physics sequence.

PHY 3016C
Project Physics III: PR: PHY 3015 or C.I. Continuation of Project Physics sequence.

PHY 3034
Physics of Science Fiction: Study and discussion of physical principles which form the basis of selected science fiction themes.

PHY 3043

PHY 3044
Electricity and Magnetism: PR: PHY 3043 or C.I. Electrostatics, current electricity, special relativity.

PHY 3045
Electromagnetic Waves: PR: PHY 3044 or C.I. Magnetostatics, electromagnetism, wave interference, polarization.

PHY 3046

PHY 3047
Thermodynamics and Statistical Physics: PR: PHY 3046 or C.I. Equations of state, equilibrium thermodynamics, derivation of variables from probability concepts and statistical principles.

PHY 3101
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
<th>This Term</th>
<th>Co-requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 3421</td>
<td>Optics and Wave Motion: CR: MAC 3314, PR: EGN 3383 or PHY 2042. Selected topics in optics, acoustics, and related wave phenomena. A study of reflection, refraction, interference, and diffraction.</td>
<td>NS 3 (3,0) F,S</td>
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<tr>
<td>PHY 3722C</td>
<td>Physics Laboratory-Electronics: PR: PHY 3752 or C.I. Lecture and laboratory work stressing electronic principles through the study of test equipment, power supplies, amplifiers, oscillators, and pulse circuits.</td>
<td>NS 4 (2,4)</td>
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<tr>
<td>PHY 3722</td>
<td>Electronics: PR: PHY 2041; CR: MAP 3305, or C.I. Basic DC and AC circuit analysis. Theory of semiconductors and transistors, rectification, amplification, oscillation. Small signal analysis and circuit design.</td>
<td>NS 3 (3,0) W</td>
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<tr>
<td>PHY 3752C</td>
<td>Physics of Scientific Instruments: PR: PHY 2051 or C.I. A lecture-laboratory course in fundamentals of physics related particularly to the application, operation and limitations of various scientific instruments.</td>
<td>NS 4 (3,3) F,S</td>
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<tr>
<td>PHY 3802L</td>
<td>Intermediate Physics Laboratory I: PR: PHY 2042 or C.I. Laboratory work in basic measurements of physical constants; intermediate level experiments in electronics, modern physics, nuclear physics, optics and solid state physics.</td>
<td>NS 4 (0,6)</td>
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<tr>
<td>PHY 3803L</td>
<td>Intermediate Physics Laboratory II: PR: PHY 3802 or C.I. Continuation of physics laboratory instruction.</td>
<td>NS 4 (0,6)</td>
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<tr>
<td>PHY 4424</td>
<td>Optics: PR: PHY 3046 or C.I. Refraction, interference, diffraction, polarization, scattering, absorption and stimulated emission, spectroscopy and lasers.</td>
<td>NS 3 (3,0)</td>
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<tr>
<td>PHY 4604</td>
<td>Quantum Mechanics: PR: PHY 3046 or C.I. A study of the postulates of quantum mechanics, the Schrodinger equation, and an introduction to the statistics of many particle systems.</td>
<td>NS 3 (3,0)</td>
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<tr>
<td>PHY 4811L</td>
<td>Advanced Physics Laboratory: PR: PHY 3802 or C.I. Experiments in optics, electronics; atomic, molecular, nuclear, solid state physics; emphasis on design, data and scientific writing.</td>
<td>NS 4 (0,6)</td>
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<tr>
<td>POS 2041</td>
<td>American National Government: A study of the dynamics of American national government, including its structure, organization, powers, and procedures.</td>
<td>SS 4 (4,0) F,W,S,Su</td>
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<tr>
<td>POS 3001</td>
<td>Principles of Political Science: Basic concepts of political science and its development as a field with emphasis on analysis of major approaches to the study of politics.</td>
<td>SS 4 (4,0) F,W,S,Su</td>
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<tr>
<td>POS 3122</td>
<td>State Government: A comparative study of American state governments and political processes with emphasis on Florida.</td>
<td>SS 4 (4,0) F,S</td>
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<tr>
<td>POS 3173</td>
<td>Southern Politics: Study of Southern Politics past and present. Emphasis on patterns of change and recent developments affecting the South and the Nation.</td>
<td>SS 4 (4,0) S</td>
<td></td>
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<tr>
<td>POS 3233</td>
<td>Public Opinion: A substantive and theoretical study of public opinion; patterns of distribution, opinion formation, opinion measurement, policy linkages.</td>
<td>SS 4 (4,0) F</td>
<td></td>
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<tr>
<td>POS 3235</td>
<td>Mass Media and Politics: Influence of media on campaigns, public officials, public opinion, and definition of political news.</td>
<td>SS 4 (4,0) F</td>
<td></td>
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<tr>
<td>POS 3253</td>
<td>Contemporary Revolution and Political Violence: Theory and analysis of Political violence and fundamental change of political systems. Analysis of revolutions, counterrevolutions and conditions of political turmoil in the contemporary world.</td>
<td>SS 4 (4,0) F,W</td>
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<tr>
<td>POS 3273</td>
<td>Electoral Behavior: Theoretical and substantive inquiry into U.S. electoral behavior: a study of the factors influencing participation and voting behavior.</td>
<td>SS 4 (4,0) W</td>
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<tr>
<td>POS 3413</td>
<td>The American Presidency: PR: POS 2041 or C.I. Examination of the presidency as an institution and of the evolution in status, powers, administrative responsibilities, leadership and decision-making roles.</td>
<td>SS 4 (4,0) F</td>
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<tr>
<td>POS 3424</td>
<td>Congress and the Legislative Process: PR: POS 2041 or C.I. The nature, role, and functions of the legislative process; the dynamics of executive-legislative relations and resultant problems.</td>
<td>SS 4 (4,0) W</td>
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</tbody>
</table>
Political Parties and Processes: PR: POS 2041 or C.I. Study of American politics with major emphasis upon the role, organization, functions, and processes of parties in the American political system.

Interest Groups and Political Movements: A study of interest groups in the American political process and a comparison of group political objectives and strategies.

Scope and Methods of Political Science: Introduction to the Scope and Methodology of political analysis. Includes scope of the discipline, research design, and methods.

Metropolitan Politics: Analysis of political patterns, processes and issues in American communities.

Policy Problems of Metropolitan Areas: Provides an in-depth analysis of two or three basic policy areas; for example, transportation, education, welfare, crime, etc.

Political Behavior: PR: POS 2041, 3001 or C.I. A substantive and theoretical study of individual and group political behavior in the American political system.

Political Sociology: Sociological analysis of political and para-political groups; socio-economic variables of voting behavior; power elites, societies and systems of government.

Political Socialization: PR: POS 2041 or C.I. Analysis of the quality and function of the recruitment and socialization processes. Identification of the agents and processes of political socialization.

Political Corruption: An examination of official corruption at each level of government.

Power and Policy in the United States: PR: POS 2041. Examination of the bases and exercise of Political power in the United States. Emphasis is on socio-economic-political linkages to the policy-making process.

Judicial Behavior: Study of Judicial Behavior emphasizing the role of courts as a bureaucratic structure. Consideration will be given to comparative judicial systems.

Political Party Behavior: Analysis of selected topics in political party behavior including: changes in Southern politics; urban parties; political campaigns; the changing electorate.

American Constitutional Law: PR: POS 2041 or C.I. The impact of judicial decision-making upon the growth of American political institutions and processes.

American Constitutional Law: PR: POS 2041 or C.I. The role of judiciary in the focusing and refinement of individual rights and civil liberties in American society.

Political Science Internship: PR: C.I. Internship working with Natick, State, County or Municipal government. Assignments with selected civic organization, elected or appointed official.

Issues in State Public Policy: PR: C.I. Analysis of policy issues occurring in the American states with attention given to single state and comparative studies.

Issues in Urban Public Policy: PR: C.I. Study of characteristic policy issues which arise in urban political systems, and of various public responses to those issues.

Public Opinion and Policy Formation: PR: C.I. A substantive and theoretical approach to understanding relationships between public opinion and public policy, including opinion/policy linkage models as well as opinion measurement.


Modern Political Ideologies: A study of modern ideologies since the French Revolution including liberalism, conservatism, capitalism and socialism.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Term</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POT 4003 SS</td>
<td>4 (4,0) F</td>
<td>Political Theory: PR: PCS 2041 or C.I. Examination of various normative approaches to the study of political science, stressing contemporary developments in the field.</td>
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<tr>
<td>POT 4013 SS</td>
<td>4 (4,0) F</td>
<td>Ancient and Medieval Political Philosophy: Study of the development of political and social ideas in Western thought from early Greece to the Renaissance.</td>
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<tr>
<td>POT 4044 SS</td>
<td>4 (4,0) W</td>
<td>Early Modern Political Philosophy: Study of the development of political and social ideas from the Renaissance to the 19th century. May be taken independently of POT 4013.</td>
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</tr>
<tr>
<td>POT 4054 SS</td>
<td>4 (4,0) S</td>
<td>Contemporary Political Philosophy: Study of contemporary Western political and social thought in the 19th and 20th Centuries. May be taken independently of POT 4013 and 4044.</td>
<td></td>
</tr>
<tr>
<td>POT 4314 SS</td>
<td>4 (4,0) F</td>
<td>Contemporary Democratic Theory: PR: PCS 2041 or C.I. Study of democratic theories emphasizing elitist theories, participatory democracy, citizen participation and the relevance of empirical research to democratic theory.</td>
<td></td>
</tr>
<tr>
<td>PSB 3442 SS</td>
<td>4 (4,0)</td>
<td>Drugs and Behavior: PR: PSY 2013. Effects of certain drugs upon the nervous system, behavior, and society. Causes of drug abuse and impact on mental health.</td>
<td></td>
</tr>
<tr>
<td>PSB 4103C SS</td>
<td>4 (4,0)</td>
<td>Biofeedback Applications: PR: EXP 3403, PSB 3002, EAB 3703 and CLP 3302. Introduction to theory, instrumentation, research and clinical application of biofeedback. Training in use of biofeedback equipment.</td>
<td></td>
</tr>
<tr>
<td>PSB 4446 SS</td>
<td>4 (4,0)</td>
<td>Clinical Psychopharmacology: PR: Graduate admission, and C.I. Physiological and clinical effects of various psychomimetic and psychoactive drugs.</td>
<td></td>
</tr>
<tr>
<td>PSC 1512 SS</td>
<td>4 (4,0)</td>
<td>Physical Science: Familiarization with the basic laws governing our universe and man's physical environment. Satisfies science requirements of the Environmental Studies Program.</td>
<td></td>
</tr>
<tr>
<td>PSY 2013 SS</td>
<td>4 (4,0) F,W,S,Su</td>
<td>General Psychology: The basic principles, theories, and methods of contemporary psychology.</td>
<td></td>
</tr>
<tr>
<td>PSY 3023 SS</td>
<td>2 (2,0)</td>
<td>Careers in Psychology: An examination of various career opportunities in Psychology including educational entry requirements, and related professional issues.</td>
<td></td>
</tr>
<tr>
<td>PSY 4204 SS</td>
<td>4 (4,0)</td>
<td>Statistical Methods in Psychology: PR: One course in statistics. Standard scores, confidence intervals, sampling distributions, hypothesis testing, correlation and regression as applied to research in psychology.</td>
<td></td>
</tr>
<tr>
<td>PSY 4604 SS</td>
<td>4 (4,0)</td>
<td>History and Systems of Psychology: PR: EXP 3404 and PPE 3003. Historical development of psychology with emphasis on classical theoretical positions.</td>
<td></td>
</tr>
<tr>
<td>PSY 6308 SS</td>
<td>4</td>
<td>Psychological Testing I: PR: Graduate admission and C.I. Theory of test construction including test reliability and validity.</td>
<td></td>
</tr>
</tbody>
</table>

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PSY 6318
Applied Testing and Selection: PR: Graduation admission and C.I. Issues in selecting employees and an examination of currently used tests in industry.

PSY 6946
Psychology Practicum: PR: Graduate admission and C.I. Supervised practice in assessment and intervention techniques. (May be repeated for credit).

PUP 3314
Minorities in American Politics: The roles of minority groups in the American political system: their impact upon the legislative, executive, and judicial processes.

PUP 4003
American Public Policy: PR: POS 2041 or C.I. The American policy-making process with a focus upon contemporary problems including the malapportionment of societal power and social conflict.

PUP 4323
Women and Politics: An examination of demands for change in the social, political and economic status of women and the policy response of the system.

PUP 4503
Government and Science: PR: C.I. Examination of the interface between science and government. Primary focus is upon governmental support for science, social accountability, and the role of the scientist—policy-maker.

PUP 4602
Politics of Health: PR: C.I. Analysis of federal-state public health policies. Primary focus upon the political processes and relevant political decision makers, interest group interventions including public personnel and consumers, and policy outcomes.

PUP 5055
Contemporary American Problems: PR: Senior or graduate standing. A public policy analysis of current problems encountered within the American system and an examination of policy alternatives.

PUP 6004
The Environment of Policy Making: PR: C.I. Consideration of the impact of the intra-systematic and extra-systematic environment upon the decision making process.

PUP 6007
Public Policy and Political Analysis: PR: C.I. An analysis of governmental action and models useful in policy analysis, stressing the pressures and procedures in decision making in a dynamic federal system.

PUP 6057

PUP 6058
Issues in International Public Policy: PR: C.I. Analysis of domestic and foreign inputs influencing foreign policy formulation and execution, with extended analysis devoted to executive structures and decision making behavior.

PUP 6717
Issues in Economic Public Policy: Examination from the perspectives of organization and politics of selected fiscal and monetary policy issues; emphasis on the limitations economic factors place upon policy making.

PUP 4000
Public Relations: Principles and practice of public relations, the means of gaining publicity and influencing people.

PUP 4101
Publications Layout and Preparation: Layout and preparation of public relations publications for profit and non-profit organizations.

PUP 4800
Public Relations Campaigns: PR: PUP 4000. Planning and execution of a public relation campaign; use of research and coordinations of elements of the campaign.

PUP 6401
Governmental Public Relations: PR: C.I. Emphasis study of campaign planning, image and public affairs activities of political aspirants and executive governmental offices at the city, county, state and federal levels.

QMB 3600
Quantitative Analysis I: PR: MAC 3233. Mathematical models and techniques used in the formulation, solution, and analysis of business problems. Linear, non-linear and dynamic programming, network, decision tree analysis; queuing, inventory, and decision theory. Computer applications.
readers in a laboratory setting. Parent interviews; case reports. May be repeated. Take concurrently with RED 6845.

REE 3040 BA 4 (4,0)
Real Estate: PR: Junior standing, ACC 2324, ECO 2023 and ECO 2013. Basic principles of real estate ownership, its use and transfer, brokerage, management, legislation, and importance to the economy.

REL 2302 HFA 4 (4,0) F
World Religions: Basic features and historical background of Confucianism, Taoism, Hinduism, Buddhism, Judaism, Christianity, and Islam.

REL 3203 HFA 4 (4,0) F,W,S
The Hebrew and Christian Heritage: The Old and New Testaments as religious documents; their socio-political context in the Ancient Near East.

REL 3314 HFA 4 (4,0) S
RELIGIONS OF China and Japan: A study of basic concepts in Shinto, Taoism, Confucianism Buddhist, and Zen.

REL 3342 HFA 4 (4,0) W
Hinduism: A study of Hindu religious ideas and scriptures; the Vedas, the Upanishads, the Bhagvat Gita, and later works.

REL 3353 HFA 4 (4,0) F
ISLAM: An inquiry into the foundations and development of Islamic thought from earliest times to modern in various parts of the world.

REL 4182 HFA 4 (4,0) W
Mysticism: The models and aims of the mystic, both Eastern and Western, as seen in art, music, and literature.

REL 4184 HFA 4 (4,0) S
Mythology: An examination and interpretation of myths dealing with gods, divine heroes, and sacred events.

REL 4300 HFA 4 (4,0) S
Comparative Religion: The world’s major religions, showing their similarities and differences in thought, action, and fellowship.

REL 4414 HFA 4 (4,0) F
The Religious Quest: A study of major religious statements from the desert Fathers to Kafka and Kazantazkis; the cultural circumstances from which they emerged.

REL 4420 HFA 4 (4,0) W
Modern Theology: Explores the revolution in religious thought prompted by Kierkegaard, Tillich, Barth, Niebuhr, and Bonhoeffer, and the secular trends suggested by Neitzsche, Altizer, Cox, and Hamilton.

RET 3026 NS 3 (3,0) F

RET 3027L NS 1 (0,3) F

RET 3031 NS 1 (1,2)
Introduction to Clinical Practice: PR: C.I. Introduction to the clinical facilities and patient care; patient-therapist relationships; isolation and infection control techniques, preparation of medication, hospital safety practices.

RET 3244 NS 3 (3,0) S

RET 3245L NS 1 (0,3) S

RET 3264 NS 3 (3,0) W

RET 3265L NS 1 (0,3) W
Respiratory Equipment Function Laboratory: CR. RET 3264. Operation, use and maintenance of mechanical ventilators.

RET 3442 NS 3 (3,0)


Cardiopulmonary Therapy: PR: RET 4935. Advanced procedures and topics used in respiratory therapy. Treatment of patients with cardiopulmonary diseases.


Pulmonary Function Studies: PR: C.I. Detailed procedures and tests to provide objective information for diagnosis of respiratory diseases.


Physical Examination: PR: RET 4414 or C.I. Patient examinations demonstrating equipment use, methods and theory. Special emphasis on the cardiopulmonary system.

Pulmonary Rehabilitation: PR: C.I. Segmental anatomy, postural drainage, exercise training, care and use of ridged and fiberoptic bronchoscopes.

Cardiopulmonary Services: PR: MAN 3010 and AHS; or C.I. An introduction to the management of cardiopulmonary services in the hospital. Development of procedure and policy manuals, staffing, leadership techniques and J.C.H.A. Standards.


Clinical Practice III: PR: C.I. Advanced life support techniques and equipment. Introduction to neonatal and pediatric critical care.

Clinical Practice IV: PR: C.I. Pulmonary functions studies, care of patients with medically treated diseases. Role of the department administrator.


Chest Medicine: PR: APB 3263. Disease states treated medically in conjunction with one or more modalities of respiratory therapy.

Risk and Insurance: PR: Junior Standing or C.I. Principles of identifying and handling risk with particular emphasis on insurance. Includes all of the general types of property, liability, life, health and social insurance.


Pathophysiology: PR: C.I. The study of radiologic science in the diagnosis and treatment of disease.

Radiologic Physics II: PR: RTE 3884 or C.I. The clinical application of physics in radiation medicine: detection, measurement techniques and equipment; radiation protection and safety; state and federal regulations; radiation biology.
RTE 3412C  
Principles of Radiographic Exposure I: PR: Admission to the professional phase of the RTE program or C.I.  
The principles controlling the production of an optimum radiograph. 
RTE 3457  
Principles of Radiographic Exposure II: PR: RTE 3412C or C.I. Continuation of RTE 3412C with emphasis on exposure technique, evaluation and use of imaging accessories; processing techniques. 
RTE 3528C  
Radiographic Procedures I: PR: Admission to the professional phase of the RAS program or C.I. A study of patient positioning, equipment manipulation and quality evaluation of radiographic studies of the appendicular skeleton, chest and abdomen. 
RTE 3549  
Radiographic Procedures II: PR: RTE 3528 or C.I. A study of patient positioning, equipment manipulation and quality evaluation of radiographic studies of the organ systems, skull and facial bones, contrast studies. 
RTE 3566  
Special Radiographic Procedures: PR: RTE 3549 or C.I. A study of specialized imaging procedures in angiography, neurology, tomography, xerography, computerized imaging, ultrasound and thermography. 
RTE 3684C  
Radiologic Physics: PR: Admission to the professional phase of the RAS program or C.I. Physics of radiation including production, interaction of radiation with matter, imaging modalities. 
RTE 3806  
Clinical Practice II: PR: RTE 3831 or C.I. Supervised clinical practice in radiographic procedures, radiation protection, patient care, equipment orientation, radiographic technic, darkroom procedures, and film quality evaluation. 
RTE 3816  
Clinical Practice III: PR: RTE 3806 or C.I. Supervised clinical practice in performing radio-graphic procedures with emphasis on competency evaluation of routine radiographic examinations. 
RTE 3826  
Clinical Practice IV: PR: RTE 3816 or C.I. Supervised clinical practice in radiographic procedures; competency evaluation of routine radiographic examination. 
RTE 3831  
Clinical Practice I: PR: Admission to the professional phase of the RDS program RTE 2002. Orientation to the hospital, introduction to areas involving the field of radiology and clinical orientation to the functions of radiology technologists. 
RTE 4205C  
Radiation Instrumentation and Equipment: PR: RTE 4569 or C.I. A study of radiological equipment and imaging modalities for specification, selection, and installation of equipment designed for specific functions. 
RTE 4207  
Quantitative Methods in Radiology Management: PR: ACC 2324 or C.I. Concepts of radiology department management emphasizing financing, budgeting, medical records; billing; leasing, purchasing of equipment; inventory; data storage and retrieval systems; determination of cost effectiveness. 
RTE 4209  
Radiological Administrative Practice: PR: MAN 3010 or C.I. Administration of radiology departments: operation standards, personnel management; facility planning; economic feasibility; community hospital board-administration-professional interrelationships; regulatory agencies; medical legal aspects. 
RTE 4209L  
Directed Study in Clinical Management: PR: RTE 4209 or C.I. Directed activity in the management of a radiology department. 
RTE 4253  
Curriculum Planning in Radiologic Technology: PR: EVT 4066 and 4380 or C.I. A study of curriculum design and approval process for hospital based and college based radiologic technology programs, including the self-study development. 
RTE 4256  
Analysis of Instruction in Radiologic Technology: PR: EVT 4066 and 4380 or C.I. Development of teaching aids, audio visuals, learning packets. Course development: questioning strategies, evaluation of didactic/clinical activities; design of continuing and inservice education programs. 
RTE 4256L  
Directed Study in Clinical Education: PR: RTE 4256 or C.I. Directed activity in classroom instruction in radiologic technology. 
RTE 4569  
Imaging in Diagnostic Radiography: PR: RTE 3387 or C.I. Quality assurance programs with evaluation of
radiographic imaging modalities and information retrieval systems, tube output evaluation, sensitometry, and flow studies.

RTE 4569L
Directed Clinical Study Imaging: PR: RTE 4569 or C.I. Clinical application of testing, data collection and interpretation of results for quality assurance programs in diagnostic radiography.

RTE 4843
Clinical Practice VI: PR: RTE 4876 or C.I. Advanced clinical practice in diagnostic radiography, radiation therapy, nuclear medicine, special procedures, and other diagnostic imaging.

RTE 4853
Clinical Practice VII: PR: C.I. Advanced clinical practice in diagnostic radiography, radiation therapy, nuclear medicine, special procedures, and other diagnostic imaging.

RTE 4876
Clinical Practice V: PR: C.I. Supervised clinical practice; emphasis on competency evaluation of routine radiographic examinations.

RTE 4945
Clinical Practice VIII: PR: C.I. Continuation of RTE 4853.

RTV 3000
Foundations of Broadcasting: Nature of the media, the mechanics of operation, history, economics, programming, and internal and external control.

RTV 3200
Broadcast Techniques: PR: RTV 3000. Introduction to the radio and television studio. Utilization of studio operating techniques and equipment (consoles, recorders, cameras, etc.) for use in educational and commercial broadcasting. Lab TBA.

RTV 3210
Radio Production: PR: RTV 3200 or C.I. The production of music (live and recorded), talk, interview, discussion, sports, and documentary including performance (talent and announcing) and direction.

RTV 3220
Television Production: PR: RTV 3200 or C.I. Emphasis on the coordination of talent, visuals, audio and lighting with the dramatic values of the presentation.

RTV 3230

RTV 3231
Broadcast Announcing and Performance: PR: RTV 3200 or C.I. A study of communication problems on camera and microphone. Development of performance skills in announcing, interviewing, narrating, and reporting. Lab TBA.

RTV 3240
Television Scene Design: PR: RTV 3200 or C.I. Study, application, and creative utilization of staging, lighting, graphics, special effects, costuming, and make-up for television production.

RTV 3300
Broadcast Journalism I: PR: JOU 3100 or C.I. Historical, legal, and quasi-legal influences on broadcast news; introduction to news sources, writing and interpreting techniques for radio-television news.

RTV 3310
Filming for Television: Principles of 8mm and 16mm film production in the television industry.

RTV 3501
Broadcast Continuity and Programming I: Preparation of written commercial copy for radio and television. Examination of program practices and traffic systems.

RTV 4206
Television Directing: PR: RTV 3220. Preparation and directing of programs with emphasis on dramatic values of composition.

RTV 4301

RTV 4311
Television Film Documentary: Historical developments, styles, and production techniques of the television film documentary.

RTV 4312
Television Film Production: PR: RTV 3310 or C.I. Preparation of filmed documentaries, public service and commercial productions. (Laboratory hours to be arranged).
RTV 4402
Broadcast Criticism: PR: RTV 3000 for RTV majors. Evaluation and criticism of past and present radio and television programs, policies, and critics. Concentration on the problem of criteria development.

RTV 4403
Radio, Television and Society. PR: RTV 3000 for RTV majors. A study of the impact of electronic media upon the habits, customs and thinking of our times. Considerations of internal media problems.

RTV 4404
International broadcasting: Comparative analysis of national broadcast systems. World broadcasting as a social, political and economic force.

RTV 4502
Broadcast Continuity and Programming II: PR: RTV 3501 or C.I. Preparation of documentaries and dramatic writing for television and radio.

RTV 4600

RTV 4605
Instructional Broadcasting: Learning theory applied to the creation, production, and dissemination of lessons via electronic media. Introduction to and practicum in radio and television studios as well as lesson presentation.

RTV 4700

RTV 4800
Broadcast Management: PR: RTV 4700. Consideration of broadcast management problems in station operations at the local, regional, and national levels.

RUS 1100
Elementary Russian Language and Civilization: Designed to initiate the student to the major language skills; listening, speaking, reading, and writing.

RUS 1101
Elementary Russian Language and Civilization: PR: RUS 1100 or equivalent. Continuation of RUS 1100.

RUS 1102
Elementary Russian Language and Civilization: PR: RUS 1101 or equivalent. Continuation of RUS 1101.

RUS 2230
Intermediate Russian Language and Civilization: PR: RUS 1102 or equivalent. Designed to continue development of language skills at the intermediate level, together with a review of grammar, idiomatic expressions, extensive reading, and further study of Russian culture.

RUS 2231
Intermediate Russian Language and Civilization: PR: RUS 2230 or equivalent. Continuation of RUS 2230.

SCE 3310
Teaching Science in the Elementary School: PR: Admission to Phase II or C.I. Selected concepts; organizing for instruction; techniques; evaluation procedures.

SCE 3330
Science Instructional Analysis: PR: EDF 3255 and EDF 3603. Course objectives for a school curriculum and methods and materials.

SCE 4111
Science Programs in the Elementary School: PR: Admission to Phase II or C.I. Overview of the instructional program in natural sciences; philosophy and objectives; special problems; instructional materials; current research and new curricula.
SCE 4374  ED 3 (1,2) W
Science Laboratory Teaching: PR: ESE 3940 or C.I. Practices and procedures for managing science laboratories in contemporary school science programs.

SCE 5143  ED 3 (3,0)
Science: A Process Approach (AAAS) as a Model program: PR: Rank II Certificate or C.I. Overview of general and special methods of science instruction; examines philosophy and materials of contemporary science programs; review curriculum development and curriculum change processes.

SCE 5238  ED 3 (3,0)

SCE 6125  ED 3 (2,1)
Intermediate School Science Programs: PR: Rank III Certificate or C.I. Basic concepts, philosophies and formats of modern middle and junior high school science programs.

SCE 6239  ED 3 (3,0)
Laboratory Programs in Science Education: PR: Rank III Certificate or C.I. Design, organizations and development of special materials and projects for science independent study centers.

SCE 6616  ED 4 (3,2) W,S,Su

SED 3335  ED 4 (3,2)
Speech Instructional Analysis: PR: EDF 3255 and EDF 3603. Study of instructional programs in speech; objectives, materials, techniques, organization for instruction, evaluation procedures, current research.

SED 4371  SS 3 (3,0) W
Directing Extracurricular Speech Activities: Debate, extemporaneous speech and other speech events; selection and training of contestants; interschool and intramural speech activities.

SED 5670  SS 4 (4,0) F
Speech Communication Instruction: PR: C.I. Communication models as teaching devices, design of communication curricula, instructional media with speech practicum and classroom criticism and evaluation.

SOC 2000  SS 4 (4,0) F,W,S,Su
General Sociology: The basic principles, theories and methods of contemporary sociology.

SOC 2001  SS 4 (4,0) F,W,S,Su

SOC 3020  SS 4 (4,0) F,W,S,Su
Social Problems: Analysis of major social problems such as mental disorders, sexual deviance, racial discrimination, poverty, community disorganization, and violence.

SOC 3110  SS 4 (4,0) W,Su
Sociology of Deviant Behavior: PR: SOC 2000. An examination of the nature, types and societal reactions to deviant behavior; special emphasis on the process of stigmatization and the emergence of deviant subcultures.

SOC 3130  SS 4 (4,0) W,S
Juvenile Delinquency: Types of delinquency behavior found among juveniles; possible causes and ways society attempts to treat the various forms of delinquency.

SOC 3150  SS 4 (4,0) F,S

SOC 3161  SS 4 (4,0) F
Sociology of Alcoholism: Introduction to the nature of alcoholism and review of its impact on society.

SOC 3201  SS 4 (4,0) F
Social Institutions: PR: SOC 2000. Social institutions, social differentiation, and social control, with emphasis on American and other modern societies.

SOC 3251  SS 4 (4,0) F
Sociology of Mental Illness: A sociological examination of mental illness as a social problem; legal aspects of mental illness, and the mental health professions.

SOC 3310  SS 4 (4,0) F,S

SOC 3320  SS 4 (4,0) F

SOC 3410 Social Stratification: PR: SOC 2000. Study of class, status and power; cultural variations in stratification systems; patterns of mobility and change.

SOC 3600 Modern Sociological Thought: PR: SOC 2000 and SOC 3640. A study of major European and American contributors to modern sociology since World War II.

SOC 3640 The Development of Social Thought: PR: SOC 2000. An overview of theories concerning the nature of man as a "social being." The nature of society from the beginnings of the scientific study of man's life to World War II.

SOC 3705 Contemporary Women and Society: An interpretation of the changing role of woman in contemporary American society.


SOC 3745 Race and Ethnic Minorities in the United States: Theoretical analysis of the emergence, maintenance and disruption of patterns of racial and ethnic stratification.

SOC 3834 Sex Roles in Modern Society: The traditional and changing roles of women and men viewed in a cross-cultural perspective.

SOC 3850 Collective Behavior: PR: SOC 2000. Analysis of relatively unstructured social situations, mobs, crowds, etc.

SOC 3871 Modern Organizations: Study of structure of social organizations, especially work organizations. Organizational and motivation theories and the social psychology of leadership and decision making are addressed.

SOC 3881 Sociology of Adolescence: An examination of the transition to adulthood in various societies with primary emphasis on initiation and the contemporary American problems centering around the "adolescent crisis."


SOC 4221 Political Sociology: Sociological analysis of political and para-political groups; socioeconomic variables of voting behavior; power elites; societies and systems of government.

SOC 4230 Medical Sociology: Analysis of patient beliefs and behavior, health practitioners, the social organization of hospitals and health services, contemporary problems in the delivery of health care.


SOC 4262 Sociology of Occupations and Professions: An examination of occupations and professions from the sociological perspective. Emphasized are professional and occupational socialization, marginality and choice as well as women and work.

SOC 4281 Sociology of Education: PR: SOC 2000. This course examines the sociological dimensions of the educational institutions including the impact of the social structure on learning and the role of education in social change.

SOC 4334 Soviet Sociology: Analysis of relations of various Soviet institutions such as education, religion, and the Communist Party to society; class structure and social problems.

SOC 4432 Contemporary Social Movements: PR: SOC 2000. Causes and effects of various social movements in American society compared to large-scale upheavals throughout the West. Considers various theories of explanation.

SOC 4463 Social Change in Developing Areas: PR: SOC 2000 and one course in statistics. A study of growth problems in the emerging nations of Africa and Latin America.
SOC 4820

SOC 5937
Proseminar in Sociology: PR: Six hours of Sociology and graduate level status or C.I. Study of culture, groups, demography, stratification, and culture and personality.

SOP 3004

SOP 3724
The Psychology of Racial Prejudice: Examination of literature relating to prejudice toward ethnic groups; effects of racism on individuals, development and maintenance of prejudice, and possible ways to reduce prejudice.

SOP 3742
Psychology of Women: Examination of the psychological impact of changing sex roles on women in modern society. Topics include childrearing, working women, sex differences in personality and cognition.

SOP 3772
Sexual Behavior: Physiological, social, and clinical aspects of human sexuality.

SOW 3104
Human Growth and Development: PR: SOC 2000. Development of an understanding of individual physical, mental and emotional growth from birth to death, recognizing social and cultural influences on the development.

SOW 3203
Social Welfare: A Social Institution: Social welfare as an institution, and as related to current objectives and programs. Oriented to non-majors.

SOW 3225

SOW 3302

SOW 3313

SOW 3322
Community Organization: PR SOW 3302. Examines theories, principles, strategies of community work and related practice skills.

SOW 3322
Social Group Work Skills: PR SOW 3302, 3350. Examines theories of social work with groups, and related practice skills.

SOW 3350
Interviewing in Social Work Practice: PR: SOW 3302. Examination of interviewing as the primary medium through which social work is practiced with emphasis on the development of methods, skills and techniques.

SOW 3602
Health Services and Social Work: PR: SOW 3203 or 3302. Examines the role of social worker in medical, mental health, and psychiatric settings. Emphasizes the social worker as a member of the services delivery team.

SOW 4323

SOW 4381
Agency Management: PR: SOW 3302 or SOW 3203. Basic administrative practice including setting objectives, writing performance standards, preparing budgets and decision making.

SOW 4431
Evaluating Social Service Programs: PR: SOW 3302, 4912. Designed to provide basic techniques and skills to assess and monitor social service programs.

SOW 4510
Field Experience: PR: SOW 3302, SOW 3225, SOW 3226, SOW 3104, SOW 3350. Supervised experiences in agencies relating theory with practice. To be taken concurrently with SOW 4522—36 hours/week in agency. May extend 2 quarters C.I.
<table>
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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Description</th>
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<tbody>
<tr>
<td>SOW 4522</td>
<td>Field Experience Seminar: Four hour weekly seminar. To be taken concurrently with SOW 4510—Field Experience. May be taken over two (2) quarters with consent of instructor.</td>
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<tr>
<td>SPA 3001</td>
<td>Introduction to Communicative Disorders: Etiology, symptoms, and methods of diagnosing and treating communicative disorders. For beginning and prospective majors in Communicative Disorders.</td>
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<tr>
<td>SPA 3052</td>
<td>Clinical Observation and Practice: PR: SPA 3550. C.I. Observation and supervised participation in speech pathology and audiology in the university clinic and local clinics.</td>
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<tr>
<td>SPA 3101</td>
<td>Physiological Bases of Speech and Hearing: PR: SPA 3001. An introduction to the anatomical physiological, and physical elements underlying the communication process.</td>
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<tr>
<td>SPA 4030</td>
<td>Basic Audiology: PR: LIN 2200, SPA 3101, 3001. Introduction to physics of sound, anatomy of hearing mechanism, pure tone audiometry, hearing aids, problems of the hearing handicapped. Observation and practice required.</td>
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<tr>
<td>SPA 4130</td>
<td>Basic Instrumentation for Communicative Disorders: PR: C.I. Calibration and instrumentation for communicative sciences. Basics of circuity as well as operation and minor repairs of audiological and speech pathology.</td>
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<tr>
<td>SPA 4552</td>
<td>Differential Diagnosis in Communication Disorders: PR: SPA 4201, 4402, 4210, 4222. Lectures, readings, observations and participation in the evaluative procedures concerned with speech and language skills of the handicapped.</td>
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<tr>
<td>SPA 5005</td>
<td>Survey of Communicative Disorders: A survey of speech, language and hearing disorders for habilitative personnel and other interested professionals.</td>
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<tr>
<td>SPA 5305</td>
<td>Auditory Problems of Infants and Children: PR: C.I. Development of sensory perception, auditory deprivation tests, and testing techniques with the neonate, infant, and young child.</td>
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<tr>
<td>SPA 5307</td>
<td>Audiology: PR: C.I. Advanced techniques in pure-tone speech, and automatic audiometry, with emphasis on interpretation of audiograms and differential diagnosis. Practice required.</td>
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<tr>
<td>SPA 5354</td>
<td>Hearing Conservation: PR: C.I. Information regarding the prevention of hearing loss and the establishing of hearing conservation programs.</td>
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SPA 5556
Communicative Disorders Programs for the Public Schools: PR: C.I. Methods and techniques for the public school clinician; including organization of public school programs. Observations required.

SPA 6204
Advanced Studies in Communicative Disorders: Articulation: Specific diagnostic techniques and therapeutic procedures for articulation disorders, muscular dysfunction disorders including dysarthria, apraxia, cleft palate and cerebral palsy.

SPA 6214
Speech of the Laryngectomee: PR: C.I. Basic principles and practice for developing and improving the speech of the laryngectomee.

SPA 6345
Auditory Amplification: Physical characteristics and clinical aspects of auditory amplifiers for the hearing handicapped. Clinical observations required.

SPA 6354

SPA 6410
Aphasia: PR: C.I. Etiology, diagnostic techniques and management of the adult aphasic patient.

SPA 6505
Clinical Practice in Language and Speech Pathology: PR: SPA 4550 and C.I. Advanced clinical practice in diagnosis and treatment of communicative disorders. May be repeated with change of content, not to exceed a total of 15 hours.

SPC 1005
Speech Improvement Laboratory: Individual and group practice for students with speech fright and delivery problems. Recommended for all students who want to improve their speaking skills.

SPC 1014
Fundamentals of Oral Communication: Use of the body and voice; participation in various speaking situations; planning, organizing, and delivering public speeches.

SPC 2050

SPC 3250
Speech and Human Relations: Introduction to semantics; symbols and meaning and the relationship with human behavior.

SPC 3301
Interpersonal Communication: Nature of the communication process; variables affecting the process and the individuals involved. Analysis of communication models, interactant behavior, situational cues, verbal and nonverbal messages.

SPC 3410
Parliamentary Procedure: Principles and rules governing participation and leadership in the conduct of formal business meetings.

SPC 3425
Group Interaction and Decision Making: A study of small group processes. Attention is given to problem solving, leadership emergence, conformity behavior, and group member role responsibilities.

SPC 3445
Leadership Through Oral Communication: A theoretical and practical investigation of leadership in oral communication situations, principles of parliamentary law, and approaches to problem solving.

SPC 3511
Argumentation and Debate: PR: SPC 1014 or C.I. Study and practice in the preparation and delivery of argumentative speeches emphasizing argument, evidence and organization.

SPC 3542
Persuasion: Motivation: PR: SPC 1014 or C.I. A study of motivational factors involved in persuasive speaking to secure belief and action.

SPC 3601
Platform Speaking: PR: SPC 1014 or C.I. Advanced training in selecting and organizing materials for various types of speeches. Practice in thinking and speaking before audiences; contemporary speeches as examples.

SPC 3605
Speech Composition: PR: SPC 1014 or C.I. Study and practice in the preparation and delivery of speeches from manuscripts with emphasis on the development of oral style.
Nonverbal Communication: Review of current behavioral research in such areas as proxemics, kinesics, physical characteristics, tactile communication and paralanguage. Lectures are supplemented by frequent nonverbal exercises.

Studies in Listening: Analysis of current trends, professional literature, and resource materials bearing upon the teaching of listening. Practice in listening: preparing listening experiences; oral and written reports.

Group Dynamics: A study of human behavior in group situations.

Attitudes and Communication: A survey of the immediate and direct ways in which persuasive communications and social groups come to influence attitudes.

Rhetoric of Social and Political Action: PR: Junior Standing. A critical investigation of social and political speaking within contemporary American society including agitative rhetoric of political dissent.

Evolution of Communication Theory: General Survey: Major communication trends from classical era to the present. Comparison of Aristotelian and non-Aristotelian rhetorics. Contributions of principal figures will be discussed.

Persuasion: Attitude Formation and Change: A survey of the immediate and direct ways in which persuasive communications and social groups come to influence attitudes.

Modern Communication Theory: Comparative analysis of theories and models of human communication: behavioral systems, encoding and decoding processes, interaction variables, and social context.

Small Group Communication: PR: C.I. A study of communication and its effect on small group behavior.

Studies in Persuasion: Survey and evaluation of experimental research in persuasion.

Elementary Spanish Language and Civilization: Designed to initiate the student to the major language skills; listening, speaking, reading, and writing.

Elementary Spanish Language and Civilization: PR: SPN 1100 or equivalent. Continuation of SPN 1100.

Elementary Spanish Language and Civilization: PR: SPN 1102 or equivalent. Continuation of SPN 1101.

Intermediate Spanish Language and Civilization: PR: SPN 1102 or equivalent. Designed to continue development of language skills at the intermediate level.

Intermediate Spanish Language and Civilization: PR: SPN 2230 or equivalent. Continuation of SPN 2230.

Intermediate Spanish Language and Civilization: PR: SPN 2231 or equivalent. Continuation of SPN 2231 with greater emphasis on Spanish civilization from the Middle Ages to the present.

Spanish Conversation: PR: SPN 2232 or equivalent. Development of skills in conversation and comprehension through practice. This course may be repeated for credit. When repeated, credit will apply to general electives only.

Spanish Composition: PR: SPN 2232 or equivalent. Development of skills in composition. This course may be repeated for credit. When repeated, credit will apply to general electives only.

Advanced Spanish Conversation: PR: SPN 3240. Advanced conversation on directed topics from various disciplines: Literature, art, psychology, philosophy, music, business and the sciences.

Advanced Spanish Composition: PR: SPN 3420. Readings and written imitations of modern literary styles in the form of themes, sketches, poems and original stories.
SPN 4780  
Spanish Phonetics and Diction: PR: SPN 3420 or equivalent. Spanish phonology with emphasis on phonetic groupings.

SPN 4450  
Stylistics: PR: SPN 3240 or equivalent. An intense study of textural criticism. An examination of the relationship between language and literature, explications and linguistic analysis of literary texts.

SPS 6936  
Problems in School Psychology: PR: Graduate admission and C.I. An investigation of some of the major problems facing psychologists working in school systems.

SPS 6949  
School Psychology Internship: PR: Graduate admission, 2nd year status and C.I. Supervised placement in school setting.

SPW 3100  
Survey of Spanish Literature I: PR: SPN 2232 or equivalent. Main literary currents and works from the Middle Ages through the Renaissance and Baroque.

SPW 3101  
Survey of Spanish Literature II: PR: SPN 2232 or equivalent. Main literary currents and works of the eighteenth and nineteenth centuries.

SPW 3102  
Survey of Spanish Literature III: PR: SPN 2232 or equivalent. Main literary currents and works from the Generation of 1898 to the present.

SPW 3130  
Survey of Latin-American Literature I: PR: SPN 2232 or equivalent. Main literary currents and works from the colonial period to the nineteenth century.

SPW 3131  
Survey of Latin-American Literature II: PR: SPN 2232 or equivalent. Main literary currents and works of the nineteenth century.

SPW 3132  
Survey of Latin-American Literature III: PR: SPN 2232 or equivalent. Main literary currents and works of the twentieth century.

SPW 3370  
Spanish Short Story: A study of representatives 19th and 20th Century Spanish short stories and their authors.

SPW 4226  
Twentieth Century Spanish Literature: PR: SPW 3102. Contemporary Spanish drama and poetry.

SPW 4270  

SPW 4310  

SPW 4460  

SPW 4461  

SPW 4600  

SPW 4601  
Cervantes II: PR: SPW 3101. Don Quixote (Part II).

SPW 4725  

SSE 3312  
Teaching Social Science in the Elementary School: PR: Admission to Phase II or C.I. Selected themes, problems, and concepts; organizing for instruction; techniques; evaluation procedures.

SSE 3333  
Social Science Instructional Analysis: PR: EDF 3255 and EDF 3803. Study of instructional programs in Social Sciences; objectives; materials; techniques; organization of instruction; evaluation procedures; current research.

SSE 4113  
Social Science Programs in the Elementary School: PR: Admission to Phase II or C.I. Instructional program in the social sciences; philosophy and objectives; instructional materials; current research and new curricula.
Trends in Secondary School Social Science: PR: Senior standing. Major social science concepts as they relate to contemporary school programs.

Intermediate School Social Science: PR: Rank III Certificate or C.I. Identification, development and evaluation of major social science concepts, new materials and teaching strategies related to Middle and Junior High School programs.

Inquiry in the Social Studies: PR: Rank III Certificate or C.I. Teaching by inquiry in the new social studies with a development of inquiry episodes.

Laboratory Programs in the Social Sciences: PR: SSE 5334 or C.I. Design organization and development of special materials related to selected conceptual specializations.

Trends in Elementary School Social Studies Education: PR: Rank III Certificate or C.I. Historical development and current trends, strategies for inquiry instruction, intellectual, social, and personal dimensions of social studies.

Contemporary Social Science Education: PR: Rank III Certificate or C.I. A survey of recent developments and contemporary programs in all areas of the social sciences.


Fundamentals of Probability and Statistics: PR: Four years of high school mathematics or MAC 1104 or MAC 1142 or equivalent. Course introducing probability and statistical inference including: estimation, hypothesis testing, binomial and normal distributions, small samples, regression and correlation.

Probability and Statistics for Engineers: PR: MAC 3313. Axioms of probability; combinatorial and geometrical probability; probability distributions; measures of location and dispersion; sampling and sampling distributions; estimation and tests of hypotheses; engineering applications.

Statistical Quality Control: PR: One course in statistics or C.I. Statistical concepts and methods applied to the control of quality of manufactured products.

Statistical Methods I: PR: One course in statistics. Statistics in research; methods of analyzing data; statistical concepts and models; estimation; tests hypotheses; regression and correlation; analysis of variance and covariance; statistical design.


Experimental Design: PR: STA 4164 or C.I. Methods of constructing and analyzing designs for experimental investigations; concepts of blocking; randomization, and replication; confounding in factorial experiments; incomplete block designs.

Regression Analysis: PR: MAS 3113 and STA 4163. Least squares techniques in multiple regression; matrix methods; general linear model, residual analysis transformations; orthogonal polynomials; stepwise and stagewise procedures; non-linear estimation.

Sample Survey Methods: PR: STA 4163 or C.I. Constructing and analyzing designs for survey investigations; simple random, stratified, multistage, and multiphase sampling designs; questionnaire construction; methods of estimation; techniques of survey investigation.

Statistical Theory I: PR: MAC 3313 or C.I. Sample space, probability axioms, distribution functions, sampling distributions, interval estimation, hypothesis testing, multivariate normal, regression and correlation, linear models, analysis of variance, distribution-free methods.


Probability Theory and Applications: PR: MAC 3314. Axioms of probability, discrete and continuous random
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>STA 4502</td>
<td>Nonparametric Statistical Methods</td>
<td>PR: STA 4163 or C.I. Statistical methods that do not require specification of a parametric distribution. Rank tests, tests for randomness and independence, order statistics.</td>
</tr>
<tr>
<td>STA 4102</td>
<td>Computer Processing of Statistical Data</td>
<td>PR: STA 4164 and knowledge of a programming language. Use of packages such as SAS, BMD, SPSS for data validation, description and analysis: regression, analysis of variance and covariance, principal components, factor analysis.</td>
</tr>
<tr>
<td>STA 5156</td>
<td>Probability for Engineers</td>
<td>PR: STA 3032. Engineering application of probability, combinatorial analysis, sample space, events, probability discrete and continuous random variables, and probability distribution.</td>
</tr>
<tr>
<td>STA 5206</td>
<td>Statistical Analysis</td>
<td>PR: A course in statistical methods and a course in mathematical statistics. This course relates the ideas of probability and statistics, including distribution theory, to the collection and analysis of data.</td>
</tr>
<tr>
<td>STA 5326</td>
<td>Statistics for Engineers</td>
<td>PR: STA 3032. Engineering application of statistics, significance tests and confidence intervals, tests of hypotheses, simple and multiple regression and correlation.</td>
</tr>
<tr>
<td>STA 5447</td>
<td>Applied Probability</td>
<td>PR: A course in mathematical statistics. Axioms of probability theory. Discrete random variables and probability distributions; Demolvre-Laplace limit theorem; laws of large numbers; Markov chains; emphasis on applications.</td>
</tr>
<tr>
<td>STA 6448</td>
<td>Probability and Statistics</td>
<td>PR: STA 5447. Probability and measure theory; distributions of continuous random variables; characteristics functions; sequence and sums of random variables; the central limit problem.</td>
</tr>
<tr>
<td>STA 6907</td>
<td>Computational Methods/Stochastic Systems</td>
<td>PR: CNM 5142. Stochastic models; Markov chains Poisson processes, birth and death models; queues; inventory models, simulation; Monte Carlo methods; game theory.</td>
</tr>
<tr>
<td>STD 3151</td>
<td>Career Development Analysis</td>
<td>PR: None. An overview of the theatre arts for Theatre majors. Analysis of job core areas. Community, state and federal information services, educational requirements and employment prospects in selected areas. Application and job interview techniques.</td>
</tr>
<tr>
<td>THE 1001</td>
<td>Study of Theatre/Drama</td>
<td>HFA 4 (2,2) F,W,S,</td>
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<tr>
<td>THE 1002</td>
<td>Study of Drama and Theatre: Nature of drama and the theatre and basic principles of play analysis.</td>
<td>HFA 4 (2,2) F,W,</td>
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<tr>
<td>THE 1020</td>
<td>Theatre Survey</td>
<td>PR: None. An overview of the theatre arts for Theatre majors.</td>
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<tr>
<td>THE 2071</td>
<td>Cinema Survey</td>
<td>HFA 4 (4,0) W,S,</td>
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<tr>
<td>THE 2925</td>
<td>Theatre Practicum I</td>
<td>PR: C.I. Open to all students interested in participating in productions of University Theatre. May be repeated for credit.</td>
</tr>
<tr>
<td>THE 3112</td>
<td>Theatre History I</td>
<td>Development of theatre art from the earliest times through the sixteenth century.</td>
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<tr>
<td>THE 3113</td>
<td>Theatre History II</td>
<td>Development of theatre art from the Renaissance through the neo-classic period to the beginning of the Romantic Period.</td>
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<tr>
<td>THE 3114</td>
<td>Theatre History III</td>
<td>Development of theatre art from the Romantic period to the modern theatre.</td>
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<tr>
<td>THE 3230</td>
<td>Theatrical Costuming</td>
<td>Analysis, design and construction of costumes in the theatre.</td>
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</table>

variables, characteristics functions, Markov chains, recurrent events, sequences of random variables, random walk, simple stochastic processes.
THE 3251 History of the Motion Picture: Development of the film industry; its social and economic impact.

THE 3312 Drama Development I: Dramatic works in translation of the Greeks, Roman and Medieval Theatre.

THE 3313 Drama Development II: A study of dramatic works in translation of the 16th and 17th centuries. Continuation of THE 3312.

THE 3314 Drama Development III: Continuation of THE 3312-3313, tracing the development of dramatic works in translation of the 18th and 19th centuries.

THE 3925 Theatre Practicum II: PR: THE 2925 or C. I. Primarily an activity course. Student will serve in some position of responsibility in production. May be repeated for credit.

THE 4072 Principles of Motion Picture Art: PR: THE 3251 or C. Aesthetic consideration of the motion picture as art. May be repeated for credit.

THE 4073 Film Production: PR: C.I. Professional 16mm film production, scripting, production, sound, and editing of theatre department ensemble films. May be repeated twice.

THE 4075 Modern Motion Picture Technique: PR: THE 3251 or C.I. An examination of the techniques of motion picture as art; directing, acting, editing, writing, cinematography.

THE 4170 Experimental Theatre: PR: C.I. Practical experiences in experimental Theatrical techniques. May be repeated for credit.


THE 4202 American Theatre II: A continuation of THE 4201, with emphasis placed upon the aesthetic and literary development of the theatre in this century.

THE 4300 Drama Studies: Reading, analysis and discussion of drama in English (excluding Shakespeare). May be repeated for credit.

THE 4375 Contemporary Theatre and Drama: Trends in theatrical production and dramatic literature in Italy, France, Germany, Russia and the Scandinavian countries.


THE 4800 Children’s Theatre: An introduction to the bases of theatre production for and by young people. Production of children’s theatre, play selection, costumes, management, and touring.

TPA 2082 Stage Properties: Design, construction, operation, and management of stage properties.


TPA 2211 Stage Carpentry: Construction, painting, rigging, and operation of stage scenery.

TPA 3060 Scene Design I: Study and practice of scene design; perspective drawing, fundamentals of design, and techniques of scene painting. (Service on crew as required).

TPA 3220 Stage Lighting: PR: Junior standing. Study of stage lighting techniques, practices, and equipment. (Service on light is required.)

TPA 3250 Make-up Technique: Analysis & design of make-up.

TPA 4061 Scene Design II: A continuation of TPA 3060 in which the emphasis is placed on independent planning and execution of scene designs.
TPP 2110  HFA 4 (4,0)
Acting I: Prepares the beginning actor for University Theatre Productions. Emphasis on movement, motivation, voice, characterizational techniques, makeup, and other basic requirements for acting.

TPP 3111  HFA 4 (2,3) W
Acting II: PR: TPP 2110 or C.I. Continuation of TPP 2110 with emphasis on characterization. May be repeated for credit.

TPP 3121  HFA 4 (2,4) W
Improvisation and Mime: PR: TPP 2110 or C.I. Inquiry into and practice of mime and improvisatory theatre production.

TPP 3310  HFA 4 (2,3) W
Directing I: Fundamental principles of play-directing; demonstrations of theory in group exercises. Each student is required to direct two short scenes for laboratory presentation and criticism.

TPP 3500  HFA 4 (3,2)
Modern Stage Movement: Modern movement patterns, analysis, improvisation, and exercise to improve the flexibility and control of the actor's physical means of expression.

TPP 3700  HFA 4 (4,0) W
Stage Diction: The role of the human voice in the art of acting: articulation, pronunciation drills, practice in vocal characterization.

TPP 4112  HFA 3 (3,0) S
Acting III: Concentration on scene study and preparation of audition material for advanced students.

TPP 4140  HFA 4 (4,0) S
Performance Styles: Instruction and experiences in traditional styles of acting and their application to the modern theatre.

TPP 4311  HFA 4 Alternate years
Directing II: PR: TPP 3310. Further theories and techniques of play direction, study of dramatic values, plot structure, style, mood, composition, and directing approach.

TPP 4350  HFA 4 (4,0)
High School Play Directing: Theory and practice of directing and producing, with emphasis upon methods practical in high school.

TTE 4004  EN 4 (4,0)

TTE 4504  EN 3 (3,0)

TTE 5204  EN 4 (4,0)
Traffic Engineering: PR: TTE 4004 and STA 3032. Study of operator and vehicle characteristics, and design for street capacity, signals, signs and markings.

TTE 5720  EN 4 (4,0)
Design Elements of Transportation Systems: PR: TTE 4004. Study of geometric and construction design elements in the engineering of transportation systems.

TTE 6607  EN 4 (4,0)
Land Use and Transportation Planning: PR: TTE 4004, 4504, or C.I. Study of analysis and design factors in land use and transportation planning.

TTE 6620  EN 4 (4,0)
Mass Transportation Systems: PR: C.I. Planning, design, construction, operation and administration of mass transportation systems.

URP 4026  SS 4 (4,0) F
The Politics of Planning for Urban Communities: Examines the social, political, and economic factors influencing the planning process at local, state, and national levels.

ZOO 1010C  NS 4 (3,4) F,S
General Zoology: Introduction to zoology; structure, function and representative groups; current concepts in zoological sciences.

ZOO 1020  NS 3 (3,0)
Biology of Man: An introduction to man as a member of the animal kingdom: his taxonomy, anatomy, growth, reproduction, development, heredity, evolution, behavior, diseases, and population growth.

ZOO 3233C  NS 5 (3,6)
Animal Parasitology: PR: ZOO 1010C. Identification and life histories of representative parasitic protozoa and helminths emphasizing host-parasite relationships; techniques of animal examination.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>PR Requirements</th>
<th>Credits</th>
<th>Term(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOO 3303C</td>
<td>Vertebrate Zoology</td>
<td>PR: 8 hours of zoology or C.I. Evolution and classification followed by an introduction to vertebrate ecology, natural history and behavior.</td>
<td>NS 4 (2,6)</td>
<td>S</td>
</tr>
<tr>
<td>ZOO 3713C</td>
<td>Comparative Vertebrate Anatomy I</td>
<td>PR: ZOO 1010C. The vertebrate animals; relationship of organs and systems; and their phylogenetic significance.</td>
<td>NS 4 (2,6)</td>
<td>F</td>
</tr>
<tr>
<td>ZOO 3714C</td>
<td>Comparative Vertebrate Anatomy II</td>
<td>PR: ZOO 3713C. Continuation of ZOO 3713C.</td>
<td>NS 4 (2,6)</td>
<td>W</td>
</tr>
<tr>
<td>ZOO 3733C</td>
<td>Human Anatomy</td>
<td>PR: BSC 1010 or equivalent. Structure of the human body. Not open to students in ZOO 3713, ZOO 3714 or equivalent.</td>
<td>NS 5 (3,4)</td>
<td>F,W</td>
</tr>
<tr>
<td>ZOO 3753C</td>
<td>Vertebrate Histology</td>
<td>PR: ZOO 1010. Anatomy, structure and function of major cell types and tissues.</td>
<td>NS 4 (2,6)</td>
<td></td>
</tr>
<tr>
<td>ZOO 4203C</td>
<td>Invertebrate Zoology</td>
<td>PR: 12 hours of biology or C.I. Taxonomy, anatomy and ecology of the invertebrate animals.</td>
<td>NS 5 (3,6)</td>
<td>W, odd years</td>
</tr>
<tr>
<td>ZOO 4453C</td>
<td>Ichthyology</td>
<td>PR: 8 hours of zoology or C.I. Introduction to the biology of the fishes, their classification, evolution and life histories.</td>
<td>NS 4 (2,6)</td>
<td>S, even years</td>
</tr>
<tr>
<td>ZOO 4523C</td>
<td>Vertebrate Ethology</td>
<td>PR: ZOO 1010. Classical ethology, modern experimental ethology and behavioral ecology are considered.</td>
<td>NS 3 (3,0)</td>
<td></td>
</tr>
<tr>
<td>ZOO 4603C</td>
<td>Embryology</td>
<td>PR: 12 hours of biology. Embryology of the vertebrates; fertilization of egg; stages of cleavage; development of organs and systems.</td>
<td>NS 5 (3,6)</td>
<td>S, even years</td>
</tr>
<tr>
<td>ZOO 4813C</td>
<td>Zoogeography</td>
<td>PR: PCB 3043 or C.I. Principles and concepts concerning regional patterns of distribution of the animals of the world, both past and present.</td>
<td>NS 3 (3,0)</td>
<td>W, even years</td>
</tr>
<tr>
<td>ZOO 5206C</td>
<td>Aquatic Invertebrates</td>
<td>PR: ZOO 4203C or C.I. A faunistic survey of major invertebrate groups associated with aquatic environments in Florida.</td>
<td>NS 5 (3,6)</td>
<td></td>
</tr>
<tr>
<td>ZOO 5335</td>
<td>Principles of Zoological Systematics</td>
<td>PR: PCB 4647 and 15 hours of zoology courses of 3000 level or above. Theory and practical of taxonomy and classification of animals; introduction to the International Code of Zoological Nomenclature.</td>
<td>NS 3 (3,0)</td>
<td></td>
</tr>
<tr>
<td>ZOO 5463C</td>
<td>Herpetology</td>
<td>PR: 8 hours of zoology or C.I. Introduction to the biology of the amphibians and reptiles, their classification, evolution and life histories.</td>
<td>NS 4 (2,6)</td>
<td></td>
</tr>
<tr>
<td>ZOO 5475C</td>
<td>Ornithology</td>
<td>PR: 8 hours of zoology or C.I. Introduction to the biology of birds, their classification, evolution and life histories.</td>
<td>NS 4 (2,6)</td>
<td>W, even years</td>
</tr>
<tr>
<td>ZOO 5483C</td>
<td>Mammalogy</td>
<td>PR: 8 hours of zoology or C.I. Introduction to the biology of mammals, their classification, evolution and life histories.</td>
<td>NS 4 (2,6)</td>
<td></td>
</tr>
<tr>
<td>ZOO 5863C</td>
<td>Fishery Biology</td>
<td>PR: PCB 4304 and ZOO 4453. The biology and management of important commercial and game fishes; case histories of selected fisheries and analysis of methodology.</td>
<td>NS 4 (2,6)</td>
<td></td>
</tr>
<tr>
<td>ZOO 6806C</td>
<td>Field Zoology</td>
<td>PR: 12 hours in biological sciences, or science teaching experience or C.I. Classification and identification among major animal groups with emphasis on field experience. Major references sources reviewed.</td>
<td>NS 4 (2,6)</td>
<td>S, odd years</td>
</tr>
</tbody>
</table>
FACULTY

The date indicates the first year of employment at Florida Technological University.

ABBOTT, DAVID W., Professor of Psychology
(1968), B.A., M.S., Ph.D. (University of Massachusetts)

ADICKS, RICHARD, Professor of English
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BURROUGHS, WAYNE A., Associate Professor of Psychology (1969), B.A., M.A., Ph.D. (University of Tennessee)

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FOWLER, EARL C., Professor of Education  

FRANK, FREDRIC D., Associate Professor of Psychology  
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GALLAGHER, CHARLES A., Assistant Professor of Management  
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GAMBRELL, CARROLL B., JR., Vice President for Academic Affairs and Professor of Engineering  
(1967), B.S., M.S.E., Ph.D. (Purdue University), P.E. (Arizona, Texas, California)

GASTON, IDELLA, Visiting Assistant Professor of Education  
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GENNARO, ROBERT N., Associate Professor of Biological Sciences
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VICKERS, DAVID H., Chariman, Department of Biological Science and Associate Professor of Biological Sciences (1969), B.S., M.S., Ph.D. (Louisiana State University)

WALKER, ROBERT L., Professor of Engineering Science (1972), B.S., M.S., Ph.D (Stanford University)

WALL, DONALD, B., Associate Professor of Engineering (1968), B.S.M.E., M.S. Ph.D. (Georgia Institute of Technology), P.E. (Florida, Georgia, South Carolina)

WALLACE, RONALD L., Assistant Professor of Sociology (1975), B.A., M.A., Ph.D. (University of Florida)

WANDO, JOYCE S., Assistant Professor of Sociology (1976), B.A., M.A., M.S.W. (University of Pennsylvania)

WANGIELISTA, MARTIN P., Professor of Engineering (1970), B.S.C.E., M.S., Ph.D. (Cornell University), P.E. (Florida)

WASHINGTON, DAVID W., Assistant Professor of Biological Sciences (1974), B.S., M.S., Ph.D. (Texas A & M University)

WASHINGTON, JOHN T., Assistant Professor of Sociology (1975), B.G.S., M.Ed. (Rollins College)

WEHR, PAUL W., Associate Professor of History (1969), A.B., M.A., Ph.D. (Ball State University)

WEIDENHEIMER, RUTH E., Professor of Education (1969), B.S., M.A., Ed.D. (Teachers College, Columbia University)

WELKER, GERALD L., Associate Professor of Music (1976), B.M., M.M., D.M.A. (Eastman School of Music)

WELLMAN, CHARLES W., Associate Professor of Art (1971), B.F.A., M.A., M.F.A. (The University of New Mexico)

WELSCH, ANNE W., Visiting Assistant Professor of Theatre (1976), B.A., B.F.A., M.F.A. (University of New Orleans)

WEST, GAIL B., Associate Professor of Education (1970), B.A., M.A., Ph.D. (Florida State University)

WHISLER, BRUCE A., Assistant Professor of Music (1971), B.A., Ph.D. (University of Rochester)

WHISLER, MARILYN W., Assistant Professor of Political Science (1971), B.A., M.A., Ph.D. (University of Wisconsin)

WHITE, CHARLES, J., Visiting Instructor of Engineering (1977), B.S.A.E., B.S.E. (Florida Technological University)

WHITE, HOLLICE R., Assistant Professor of Aerospace Studies (1978), B.A., M.Ed., (Georgia State University)

WHITE, KENNETH R., Associate Professor of Economics (1968), B.S., Ph.D. (University of Oklahoma)

WHITE, ROSEANN S., Associate Professor of Biological Sciences (1969), B.S., Ph.D. (University of Texas)

WHITTIER, HENRY O., Associate Professor of Biological Sciences (1968), B.S.Ed., M.A., Ph.D. (Columbia University)

WILSON, JAMES, Visiting Associate Professor of Management (1968), B.S., M.S. (Illinois State University)


WODZINSKI, RUDY J., Professor of Biological Sciences (1970), B.S., M.S., Ph.D. (University of Wisconsin)
WOLF, J. GARY, Chairman, Department of Music and Associate Professor of Music
(1972), B.M.Ed., M.M., D.M.A. (Eastman School of Music)

WOOD, ALEXANDER T., Associate Professor of Education
(1969), B.A., M.S., Ph.D. (Florida State University)

WORKMAN, DAVID A., Assistant Professor of Computer Science
(1976), B.S., M.S., Ph.D. (University of Iowa)

WORRELL, LEWIS T., Instructor of Allied Sciences
(1976), RRT, B.S. (Florida Technological University)

WRANCHER, ELIZABETH A., Associate Professor of Music
(1974), B.M. (Indiana University) Prima Soprano Koblenz, Augsburg and Detmold

WRIGHT, BURTON, Associate Professor of Sociology
(1970), B.S., M.S., Ph.D. (Florida State University)

WYATT, WYATT L., Associate Professor of English
(1970), B.A., M.A. (Columbia University)

WYCOFF, EDGAR B., Assistant Professor of Communication
(1972), B.S., M.B.A., Ph.D. (Florida State University)

XANDER, JAMES A., Assistant Professor of Economics
(1969), B.S., Ph.D. (University of Georgia)

YOUNG, WILLIAM W., Chairman, Department of Public Service Administration and Professor of
Public Service Administration
(1969), A.B., M.A., Ph.D. (University of Pittsburgh)

YOUSEF, A., Professor of Engineering and Director, Environmental Systems Engineering Institute
(1970), B.S.C.E., M.S., Ph.D. (University of Texas), P.E. (Florida, Texas)

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COMBS, HOMER C.
(1968), A.B., M.A., Ph.D. (Northwestern University)
Professor Emeritus of English

CRAIG, ALBERT T.
(1970), B.S., M.A., Ed.D. (Florida State University)
Professor Emeritus of Education

LYTLE, ERNEST J.
(1968), B.S., M.A., Ph.D. (University of Florida)
Professor Emeritus of Mathematical Sciences

HONORARY DEGREES AWARDED

December, 1969
Kurt H. Debus, Doctor of Engineering Science
William H. Dial, Doctor of Commercial Science
John W. Young, Doctor of Applied Science
Louis C. Murray, Doctor of Public Service
Fred Elmo Clayton, Doctor of Professional Engineering

March, 1973

August, 1974

COURTESY APPOINTMENTS

BRADFORD, WILLIAM S., Clinical Professor of Allied Health Sciences Anesthesiologist, Orange
Memorial Hospital, Orlando
B.S., M.D. (University of North Carolina)

CALABRESE, ANTHONY S., Clinical Professor of Allied Health Sciences Radiologist, Holiday
Hospital, Orlando
B.S., M.D. (Northwestern University)
CAPRAUN, LYNN W., Clinical Instructor of Allied Health Sciences Director, Respiratory Therapy Program, Valencia Community College, Orlando
RRT, B.S. (Florida Technological University)

CARLETON, CHARLES C., Clinical Professor of Allied Health Sciences Pathologist, Winter Park Memorial Hospital, Winter Park
M.D. (McGill University)

CARR, EDWARD O., Clinical Instructor of Allied Health Sciences Managing Director, Central Florida Blood Bank, Orlando
S.B.B., M.T. (ASCP), B.S. (Mississippi State)

GETTING, VLADO A., Adjunct Professor of Allied Health Sciences Public Health Consultant, Winter Park
B.A., M.D., M.P.H., Dr.P.H. (Harvard University)

GILBERT, CLARENCE M., Clinical Professor of Allied Health Sciences and Medical Director of Respiratory Therapy Medical Director, Cardiopulmonary Therapy, Orange Memorial Hospital, Orlando
B.A., M.D. (University of Pennsylvania)

GREGG, JOHN F., Adjunct Assistant Professor of Allied Health Sciences Assistant Administrator, Orange Memorial Hospital, Orlando
B.S., M.B.A. (University of Florida)

HALL, IRA T., JR., Clinical Instructor of Allied Health Sciences Chief Radiologic Technologist, Halifax Hospital Medical Center, Daytona Beach
RT (ARRT)

HEINSOHN, BARBARA, Adjunct Assistant Professor of Allied Health Sciences Education Coordinator, School of Medical Technology, Winter Park Memorial Hospital, Winter Park
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HILL, DARLENE, Adjunct Instructor of Allied Health Sciences Director, Medical Record Department, Mercy Hospital, Orlando
ART

HINKLE, LEWIS O., Clinical Assistant Professor of Allied Health Sciences Education Director of Radiologic Technology Program, Halifax Hospital Medical Center, Daytona Beach
RT (ARRT), B.S. (Alderson Broaddus College)

HOLCOMB, RODNEY F., Clinical Professor of Allied Health Sciences Pathologist, Florida Hospital, Orlando
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RT (ARRT)

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ART

JUDY, JUDY, Adjunct Instructor of Allied Health Sciences Director, Medical Record Department, Winter Park Memorial Hospital, Winter Park
ART

KANAREK, KEITH S., Clinical Associate Professor of Allied Health Sciences Director of Neonatal Intensive Care Program, Orange Memorial Hospital, Orlando
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KERNODLE, BETTY W., Adjunct Instructor of Allied Health Sciences Director, Medical Record Department, Orange Memorial Hospital, Orlando
   RRA, A.B. (Duke University)

KLOTZ, SOL D., Adjunct Professor of Biological Sciences Allergist, Orlando
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LEE, LESLIE W., Clinical Assistant Professor of Allied Health Sciences Assistant Director, Medical Laboratories, Orange Memorial Hospital, Orlando
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MARVIN, PAUL W., Clinical Assistant Professor of Allied Health Sciences Physicist, Halifax Hospital Medical Center, Daytona Beach
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MAURER, DAVID A., Clinical Professor of Allied Health Sciences Director of Laboratories, Winter Park Memorial Hospital, Winter Park
   M.D. (Tulane University)

MURRAY, LOUIS C., Clinical Professor of Allied Health Sciences General Practitioner, Orlando
   M.D. (Hahnemann Medical College)

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   RRA, B.S. (Florida Technological University)

PARTAIN, JONATHAN O., Clinical Professor of Allied Health Sciences Cardiologist, Orlando
   B.S., M.D. (Vanderbilt University)

PRITCHARD, PETER C.H., Adjunct Assistant Professor of Biological Sciences Vice President—Science and Research, Florida Audubon Society, Maitland
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REYES, MARIO R., Clinical Assistant Professor of Allied Health Sciences Pathologist, Sunland Hospital, Orlando
   M.D. (Universidad de la Habana)

RISACHER, ROBERT L., Clinical Associate Professor of Allied Health Sciences Chief of Clinical Chemistry and Toxicology, Orange Memorial Hospital, Orlando
   Ph.D. (University of Massachusetts)

ROGERS, PATRICIA W., Adjunct Assistant Professor of Allied Health Sciences Education Coordinator, School of Medical Technology, Florida Hospital
   S.B.B., MT (ASCP), B.S. (East Tennessee State University)

ROLLIE, ORRIS O., Clinical Associate Professor of Allied Health Sciences Associate Director of Medical Education, Florida Hospital, Orlando
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SNYDER, ROBERT C., Clinical Assistant Professor of Allied Health Sciences Internal Medicine, Orlando
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STONER, EDWARD W., Clinical Professor of Allied Health Sciences Director of Student Health Service, Florida Technological University, Orlando
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VAN HOOK, JOHN J., Clinical Instructor of Allied Health Sciences Critical Care Respiratory Therapist, Orange Memorial Hospital, Orlando
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WALSH, ANTHONY, Clinical Associate Professor of Allied Health Sciences Director of Microbiology, Orange Memorial Hospital, Orlando  Ph.D. (University of Florida)

WARDELL, BARBARA J., Clinical Instructor of Allied Health Sciences Education Coordinator, School of Medical Technology, Orange Memorial Hospital, Orlando  MT (ASCP), B.S. (Marshall University)

WILLARD, BEN C., Clinical Professor of Allied Health Sciences Pathologist and Director of Medical Laboratories, Orange Memorial Hospital, Orlando  M.D. (Tulane University)
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