Known as the "Texas system," the modified semester plan would have two 16-week semesters and two 6-week minimesters in the summer.

"Assuming the program were approved for the coming year," Taylor said, "Registrar Dan Chapman has outlined a tentative schedule for 1973-74. Fall classes would begin August 20 and end December 4. Winter semester will begin January 11 and end April 23. The summer minimesters will begin May 6 and end July 17.

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 reserves the right to change without notice any of the materials — information, requirements, regulations — published in this Bulletin.

ACCENT ON THE INDIVIDUAL and ON EXCELLENCE

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This public document was promulgated at an annual cost of $21,800 or $0.54\(\frac{1}{2}\) per copy to acquaint the student with the program of study and the cost of attending the university.
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Edward W. Stoner, M.D., Director of Student Health Service
David A. Tucker, Ph.D., Director of Development Center
Carol P. Wilson, M.B.A., Dean of Women
### WHERE TO GO FOR ANSWERS

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AD Lobby
Parking Facilities

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<tr>
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</tr>
<tr>
<td>B</td>
<td>3,4,5</td>
</tr>
<tr>
<td>C</td>
<td>4,4, all temp.</td>
</tr>
<tr>
<td>D-R</td>
<td>1,2,4,7</td>
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<tr>
<td>H</td>
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West lots 1,2,3,4,5 may be complete by January for use by all.

BUILDING CODE NO. | BUILDING NAME |
--------------------|---------------|
1                   | ADMINISTRATION |
2                   | LIBRARY |
3                   | UTILITY PLANT |
4                   | SEWAGE PLANT |
5                   | SCIENCE BUILDING |
6                   | SCIENCE AUDITORIUM |
7                   | VILLAGE CENTER |
8                   | RESIDENCE B |
9                   | RESIDENCE A |
10                  | RESIDENCE D |
11                  | RESIDENCE C |
12                  | ENGINEERING |
13                  | COMPUTER CENTER |
14                  | CLASSROOM BUILDING |
15                  | PHYSICAL EDUCATION BLDG. |
16                  | PHYSICAL PLANT SHOPS |
17                  | UNIV. POLICE DEPT. |
302                 | ART COMPLEX |

FTU 1973 CAMPUS
ACADEMIC CALENDAR

spring quarter 1973

FEBRUARY 26 (MON.)
LAST DAY FOR RECEIPT OF UNDERGRADUATE APPLICATIONS FOR ADMISSION TO SPRING QUARTER. LAST DAY FOR RECEIPT OF GRADUATE APPLICATIONS FOR ADMISSION TO SPRING QUARTER.

MARCH 12 (MON.)
LAST DAY FOR RECEIPT OF APPLICATIONS FOR READMISSION TO SPRING QUARTER.

MARCH 20 (TUES.)
ORIENTATION AND ADVISEMENT FOR NEW FRESHMAN, TRANSFERS, AND ADVISEMENT FOR FORMER AND CURRENT STUDENTS NOT PRE-ADVISED.

MARCH 21, BEGINS 6:00 pm (WED.)
REGISTRATION BY APPOINTMENT FOR GRADUATE STUDENTS.

MARCH 22, BEGINS 9:30 am (THURS.)
REGISTRATION BY APPOINTMENT FOR CURRENT UNDERGRADUATE STUDENTS.

MARCH 23, 9:30 - 10:00 am (FRI.)
REGISTRATION FOR ANY ELIGIBLE CURRENT UNDERGRADUATE STUDENTS NOT REGISTERED.

MARCH 23, 10:00 - 10:30 am (FRI.)
REGISTRATION FOR FORMER UNDERGRADUATE STUDENTS BY APPOINTMENT.

MARCH 23, BEGINS 10:30 am (FRI.)
REGISTRATION BY APPOINTMENT FOR NEW UNDERGRADUATE STUDENTS.

MARCH 26, 7:00 am (MON.)
CLASSES BEGIN FOR SPRING QUARTER.

MARCH 26, 7:00 am (MON.)
LATE REGISTRATION (FOR TEMPORARY STUDENTS). ALL STUDENTS WILL BE ASSESSED A LATE FEE: $25.00 FOR FULL-TIME STUDENTS, $10.00 FOR PART-TIME STUDENTS.

MARCH 28, UNTIL 3:00 pm (WED.)
LAST DAY TO ADJUST CLASS SCHEDULE (END OF ADD-DROP PERIOD). LAST DAY FOR WITHDRAWAL WITH REFUND.

MARCH 28, 4:00 - 6:00 pm (WED.)
LAST DAY TO MAKE APPLICATION FOR GRADUATION FOR STUDENTS WHO WILL COMPLETE REQUIREMENTS AT END OF SPRING QUARTER.

MARCH 28 (WED.)
SPRING HOLIDAY (STUDENTS).

APRIL 20 (FRI.)
CLASSES RESUME.

APRIL 23, 7:00 am (MON.)
APRIL 23 (MON.) | DEADLINE FOR WITHDRAWAL WITHOUT GRADE PENALTY, LAST DAY FOR REMOVING TEMPORARY STUDENT STATUS.

APRIL 28 (SAT.) | GRADUATE RECORD EXAM (AT DESIGNATED CENTERS). REGISTRATION FOR EXAMINATION MUST BE MADE 4 WEEKS PRIOR TO THIS DATE.

MAY 21-25 (MON.-FRI.) | EDUCATIONAL COUNSELING AND STUDENT ADVISEMENT FOR THE SUMMER AND FALL QUARTERS.

MAY 23 (WED.) | LAST DAY TO WITHDRAW FROM A COURSE OR FROM THE UNIVERSITY. LAST DAY TO CHANGE FROM CREDIT TO AUDIT, IF PASSING. LAST DAY TO REMOVE AN “I” EARNED LAST QUARTER

MAY 28 (MON.) | MEMORIAL DAY HOLIDAY (UNDER THE 1968 UNIFORM MONDAY HOLIDAY ACT).

MAY 29, 7:00 am (TUES.) | CLASSES RESUME.

JUNE 1, 9:30 pm (FRI.) | CLASSES END FOR SPRING QUARTER.

JUNE 4-7 (MON.-THURS.) | FINAL EXAMINATION PERIOD.

JUNE 8 (FRI.) | COMMENCEMENT.

JUNE 9, 12 noon (SAT.) | GRADES DUE IN REGISTRAR’S OFFICE. ACADEMIC YEAR ENDS

summer quarter 1973

MAY 17 (THURS.) | LAST DAY FOR RECEIPT OF UNDERGRADUATE APPLICATIONS FOR ADMISSION TO SUMMER QUARTER. LAST DAY FOR RECEIPT OF GRADUATE APPLICATIONS FOR ADMISSION TO SUMMER QUARTER.

MAY 31 (THURS.) | LAST DAY FOR RECEIPT OF APPLICATIONS FOR READMISSION TO SUMMER QUARTER.

JUNE 11 (MON.) | ORIENTATION AND ADVISEMENT FOR NEW FRESHMEN, TRANSFERS, AND ADVISEMENT FOR FORMER AND CURRENT STUDENTS NOT PRE-ADvised.

JUNE 14, BEGINS 6:00 pm (THURS.) | REGISTRATION BY APPOINTMENT FOR GRADUATE STUDENTS.

JUNE 15, BEGINS 9:30 am (FRI.) | REGISTRATION BY APPOINTMENT FOR CURRENT UNDERGRADUATE STUDENTS.
JUNE 15, 3:00 - 3:30 pm (FRI.)  REGISTRATION BY APPOINTMENT FOR FORMER UNDERGRADUATE STUDENTS.

JUNE 15, BEGINS 3:30 pm (FRI.)  REGISTRATION BY PRIORITY NUMBER FOR NEW FRESHMEN AND TRANSFER STUDENTS.

JUNE 16, (SAT.)  GRADUATE RECORD EXAM (AT DESIGNATED CENTERS). REGISTRATION FOR EXAMINATION MUST BE MADE 4 WEEKS PRIOR TO THIS DATE.

JUNE 18, 7:00 am (MON.)  CLASSES BEGIN FOR SUMMER QUARTER.

JUNE 20, BEGINS 4:00 pm (WED.)  LATE REGISTRATION (FOR TEMPORARY STUDENTS). ALL STUDENTS WILL BE ASSESSED A LATE FEE: $25.00 FOR FULL-TIME STUDENTS, $10.00 FOR PART-TIME STUDENTS.

JUNE 20 (WED.)  LAST DAY TO ADJUST CLASS SCHEDULE (END OF ADD-DROP PERIOD). LAST DAY FOR WITHDRAWAL WITH REFUND.

JULY 4 (WED.)  INDEPENDENCE DAY HOLIDAY (UNIVERSITY-WIDE).

JULY 5, 7:00 am (THURS.)  CLASSES RESUME.

JULY 13 (FRI.)  DEADLINE FOR WITHDRAWAL WITHOUT GRADE PENALTY. LAST DAY FOR REMOVING TEMPORARY STUDENT STATUS.

AUGUST 3 (FRI.)  LAST DAY TO WITHDRAW FROM A COURSE OR FROM THE UNIVERSITY. LAST DAY TO CHANGE FROM CREDIT TO AUDIT, IF PASSING. LAST DAY TO REMOVE AN "I" EARNED LAST QUARTER.

AUGUST 6-10 (MON.-FRI.)  EDUCATIONAL COUNSELING AND STUDENT ADVISEMENT FOR FALL QUARTER.

AUGUST 17 (FRI.)  CLASSES END FOR SUMMER QUARTER. FINAL EXAMINATIONS GIVEN AT THE DISCRETION OF THE INSTRUCTOR. SPECIAL GRADUATION CEREMONY.

AUGUST 20, 12 noon (MON.)  GRADES DUE IN REGISTRAR'S OFFICE.

JULY
1  2  3  4  5  6  7
8  9  10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31

AUGUST
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5  6  7  8  9 10 11
12 13 14 15 16 17 18
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## Fall Quarter 1973

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<td><strong>REGISTRATION BY APPOINTMENT FOR NEW FULL-TIME UNDERGRADUATE STUDENTS.</strong></td>
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<td><strong>REGISTRATION BY APPOINTMENT FOR NEW FULL-TIME UNDERGRADUATE STUDENTS AND OTHER STUDENTS NOT YET REGISTERED.</strong></td>
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<td><strong>SEPTEMBER 24, 7:00 am (MON.)</strong></td>
<td><strong>CLASSES BEGIN FOR FALL QUARTER.</strong></td>
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<td><strong>SEPTEMBER 26, 6:00-8:00 pm (WED.) and SEPTEMBER 28, 4:00-5:00 pm (FRI.)</strong></td>
<td><strong>LATE REGISTRATION (FOR TEMPORARY STUDENTS). ALL STUDENTS WILL BE ASSESSED A LATE FEE: $25.00 FOR FULL-TIME STUDENTS, $10.00 FOR PART-TIME STUDENTS.</strong></td>
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SEPTEMBER 28 (FRI.) | LAST DAY TO ADJUST CLASS SCHEDULE (END OF ADD-DROP PERIOD).
| LAST DAY FOR WITHDRAWAL WITH REFUND.
| LAST DAY TO MAKE APPLICATION FOR GRADUATION FOR STUDENTS WHO WILL COMPLETE REQUIREMENTS AT END OF FALL QUARTER.

OCTOBER 19 (FRI.) | DEADLINE FOR WITHDRAWAL WITHOUT GRADE PENALTY. LAST DAY FOR REMOVING TEMPORARY STUDENT STATUS.

OCTOBER 22 (MON.) | VETERANS' DAY HOLIDAY (UNDER THE 1968 UNIFORM MONDAY HOLIDAY ACT).

OCTOBER 23, 7:00 am (TUES.) | CLASSES RESUME.

OCTOBER 27 (SAT.) | GRADUATE RECORD EXAM (AT DESIGNATED CENTERS). REGISTRATION FOR EXAMINATION MUST BE MADE 4 WEEKS PRIOR TO THIS DATE.

NOVEMBER 21 (WED.) | LAST DAY TO WITHDRAW FROM A COURSE OR FROM THE UNIVERSITY.
| LAST DAY TO CHANGE FROM CREDIT TO AUDIT, IF PASSING.
| LAST DAY TO REMOVE AN "I" EARNED LAST QUARTER.

NOVEMBER 22-23 (THURS.-FRI.) | THANKSGIVING HOLIDAYS (UNIVERSITY-WIDE).

NOVEMBER 26, 7:00 am (MON.) | CLASSES RESUME.

NOVEMBER 26-30 (MON.-FRI.) | EDUCATIONAL COUNSELING AND SCHEDULE ADVISEMENT FOR WINTER QUARTER (FOR CURRENTLY ENROLLED STUDENTS).

DECEMBER 7, 9:30 pm (FRI.) | CLASSES END FOR FALL QUARTER.

DECEMBER 8 (SAT.) | GRADUATE RECORD EXAM (AT DESIGNATED CENTERS). REGISTRATION FOR EXAMINATION MUST BE MADE 4 WEEKS PRIOR TO THIS DATE.

DECEMBER 10-13 (MON.-THURS.) | FINAL EXAMINATION PERIOD.

DECEMBER 14 (FRI.) | SPECIAL GRADUATION CEREMONY.

DECEMBER 17, 12 noon (MON.) | GRADES DUE IN REGISTRAR'S OFFICE.
| CHRISTMAS HOLIDAYS BEGIN (STUDENTS).

OCTOBER
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31

NOVEMBER
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30

DECEMBER
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31
winter quarter 1974

DECEMBER 3 (MON.) LAST DAY FOR RECEIPT OF UNDERGRADUATE APPLICATIONS FOR ADMISSION TO WINTER QUARTER. LAST DAY FOR RECEIPT OF GRADUATE APPLICATIONS FOR ADMISSION TO WINTER QUARTER.

DECEMBER 17 (MON.) LAST DAY FOR RECEIPT OF APPLICATION FOR READMISSION TO WINTER QUARTER.

JANUARY 2 (WED.) ORIENTATION AND ADVISEMENT FOR NEW FRESHMEN, TRANSFERS, AND ADVISEMENT FOR CURRENT AND FORMER STUDENTS NOT PRE-ADVISED.

JANUARY 2, BEGINS 9:30 am (WED.) REGISTRATION BY APPOINTMENT FOR GRADUATE STUDENTS.

JANUARY 2, BEGINS 10:00 am (WED.) REGISTRATION BY APPOINTMENT FOR CURRENT UNDERGRADUATE STUDENTS.

JANUARY 3, 9:30-10:00 am (THURS.) REGISTRATION FOR ANY ELIGIBLE CURRENT UNDERGRADUATE STUDENTS NOT REGISTERED.

JANUARY 3, 10:00-10:30 am (THURS.) REGISTRATION FOR FORMER UNDERGRADUATE STUDENTS BY APPOINTMENT.

JANUARY 3, BEGINS 10:30 am (THURS.) REGISTRATION FOR NEW UNDERGRADUATE STUDENTS BY APPOINTMENT.

JANUARY 4, 7:00 am (FRI.) CLASSES BEGIN FOR WINTER QUARTER.

JANUARY 8, UNTIL 3:00 pm (TUES.) LAST DAY TO ADJUST CLASS SCHEDULE (END OF ADD-DROP PERIOD). LAST DAY FOR WITHDRAWAL WITH REFUND.

JANUARY 8, 4:00-6:00 pm (TUES.) LATE REGISTRATION (FOR TEMPORARY STUDENTS). ALL STUDENTS WILL BE ASSESSED A LATE FEE: $25.00 FOR FULL-TIME STUDENTS, $10.00 FOR PART-TIME STUDENTS. LAST DAY TO MAKE APPLICATIONS FOR GRADUATION FOR STUDENTS WHO WILL COMPLETE REQUIREMENTS AT END OF WINTER QUARTER.

JANUARY 19 (SAT.) GRADUATE RECORD EXAM (AT DESIGNATED CENTERS). REGISTRATION FOR EXAMINATION MUST BE MADE 4 WEEKS PRIOR TO THIS DATE.

JANUARY 31 (THURS.) DEADLINE FOR WITHDRAWAL WITHOUT GRADE PENALTY. LAST DAY FOR REMOVING TEMPORARY STUDENT STATUS.
FEBRUARY 23 (SAT.)  GRADUATE RECORD EXAM (AT LIMITED NUMBER OF CENTERS). REGISTRATION FOR EXAMINATION MUST BE MADE 4 WEEKS PRIOR TO THIS DATE.

FEBRUARY 25-MARCH 1 (MON.-FRI.)  EDUCATIONAL COUNSELING AND SCHEDULE ADVISEMENT FOR SPRING QUARTER.

MARCH 1 (FRI.)  LAST DAY TO WITHDRAW FROM A COURSE OR FROM THE UNIVERSITY. LAST DAY TO CHANGE FROM CREDIT TO AUDIT, IF PASSING. LAST DAY TO REMOVE AN "I" Earned LAST QUARTER.

MARCH 8, 9:30 pm (FRI.)  CLASSES END FOR WINTER QUARTER.

MARCH 11-14 (MON.-THURS.)  FINAL EXAMINATION PERIOD.

MARCH 15 (FRI.)  SPECIAL GRADUATION CEREMONY.

MARCH 16, 12 noon (SAT.)  GRADES DUE IN REGISTRAR’S OFFICE.

spring quarter  1974

FEBRUARY 25 (MON.)  LAST DAY FOR RECEIPT OF UNDERGRADUATE APPLICATIONS FOR ADMISSION TO SPRING QUARTER. LAST DAY FOR RECEIPT OF GRADUATE APPLICATIONS FOR ADMISSION TO SPRING QUARTER.

MARCH 11 (MON.)  LAST DAY FOR RECEIPT OF APPLICATIONS FOR READEMISSION TO SPRING QUARTER.

MARCH 19 (TUES.)  ORIENTATION AND ADVISEMENT FOR NEW FRESHMEN, TRANSFERS, AND ADVISEMENT FOR FORMER AND CURRENT STUDENTS NOT PRE-ADvised.

MARCH 20, BEGINS 6:00 pm (WED.)  REGISTRATION BY APPOINTMENT FOR GRADUATE STUDENTS.

MARCH 21, BEGINS 9:30 am (THURS.)  REGISTRATION BY APPOINTMENT FOR CURRENT UNDERGRADUATE STUDENTS.

MARCH 22, 9:30 am - 12 noon (FRI.)  REGISTRATION FOR ANY ELIGIBLE CURRENT UNDERGRADUATE STUDENTS NOT REGISTERED.

MARCH 22, 1:00-2:00 pm (FRI.)  REGISTRATION FOR FORMER UNDERGRADUATE STUDENTS BY APPOINTMENT.

MARCH 22, BEGINS 2:00 pm (FRI.)  REGISTRATION BY APPOINTMENT FOR NEW UNDERGRADUATE STUDENTS.
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>March 25, 7:00 am (Mon.)</td>
<td>Classes begin for Spring Quarter.</td>
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<tr>
<td>March 27, until 3:00 pm (Wed.)</td>
<td>Last day to adjust class schedule (end of add-drop period). Last day for withdrawal with refund.</td>
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<tr>
<td>March 27, 4:00-6:00 pm (Wed.)</td>
<td>Late registration (for temporary students). All students will be assessed a late fee: $25.00 for full-time students, $10.00 for part-time students.</td>
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<tr>
<td>March 27 (Wed.)</td>
<td>Last day to make application for graduation for students who will complete requirements at end of Spring Quarter.</td>
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<tr>
<td>April 12 (Fri.)</td>
<td>Spring Holiday (students).</td>
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<tr>
<td>April 22, 7:00 am (Mon.)</td>
<td>Classes resume.</td>
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<tr>
<td>April 22, (Mon.)</td>
<td>Deadline for withdrawal without grade penalty. Last day for removing temporary student status.</td>
</tr>
<tr>
<td>April 27 (Sat.)</td>
<td>Graduate Record Exam (at designated centers). Registration for examination must be made 4 weeks prior to this date.</td>
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<tr>
<td>May 20-24 (Mon.-Fri.)</td>
<td>Educational counseling and student advisement for the Summer and Fall Quarters.</td>
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<tr>
<td>May 22 (Wed.)</td>
<td>Last day to withdraw from a course or from the University. Last day to change from credit to audit, if passing. Last day to remove an &quot;I&quot; earned last quarter.</td>
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<tr>
<td>May 27 (Mon.)</td>
<td>Memorial Day Holiday (under the 1968 Uniform Monday Holiday Act).</td>
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<tr>
<td>June 3-6 (Mon.-Thurs.)</td>
<td>Classes resume.</td>
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<tr>
<td>June 7 (Fri.)</td>
<td>Classes end for Spring Quarter.</td>
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<tr>
<td>June 8, 12 noon (Sat.)</td>
<td>Final Examination period.</td>
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<td>May 12 3 4 5 6</td>
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<td>May 26 27 28 29 30</td>
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<tr>
<td>May 31</td>
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</table>
summer quarter 1974

MAY 16 (THURS.) LAST DAY FOR RECEIPT OF UNDERGRADUATE APPLICATIONS FOR ADMISSION TO SUMMER QUARTER. LAST DAY FOR RECEIPT OF GRADUATE APPLICATIONS FOR ADMISSION TO SUMMER QUARTER.

MAY 30 (THURS.) LAST DAY FOR RECEIPT OF APPLICATIONS FOR READMISSION TO SUMMER QUARTER.

JUNE 10 (MON.) ORIENTATION AND ADVISEMENT FOR NEW FRESHMEN, TRANSFERS, AND ADVISEMENT FOR FORMER AND CURRENT STUDENTS NOT PRE-ADVISED.

JUNE 13, BEGINS 6:00 pm (THURS.) REGISTRATION BY APPOINTMENT FOR GRADUATE STUDENTS.

JUNE 14, BEGINS 9:30 am (FRI.) REGISTRATION BY APPOINTMENT FOR CURRENT UNDERGRADUATE STUDENTS.

JUNE 14, 3:00-3:30 pm (FRI.) REGISTRATION BY APPOINTMENT OF FORMER UNDERGRADUATE STUDENTS.

JUNE 14, BEGINS 3:30 pm (FRI.) REGISTRATION BY PRIORITY NUMBER FOR NEW FRESHMEN AND TRANSFER STUDENTS.

JUNE 15, (SAT.) GRADUATE RECORD EXAM (AT DESIGNATED CENTERS). REGISTRATION FOR EXAMINATION MUST BE MADE 4 WEEKS PRIOR TO THIS DATE.

JUNE 17, 7:00 am (MON.) CLASSES BEGIN FOR SUMMER QUARTER.

JUNE 19, BEGINS 4:00 pm (WED.) LATE REGISTRATION (FOR TEMPORARY STUDENTS). ALL STUDENTS WILL BE ASSESSED A LATE FEE: $25.00 FOR FULL-TIME STUDENTS, $10.00 FOR PART-TIME STUDENTS.

JUNE 19 (WED.) LAST DAY TO ADJUST CLASS SCHEDULE (END OF ADD-DROP PERIOD). LAST DAY FOR WITHDRAWAL WITH REFUND. LAST DAY TO MAKE APPLICATION FOR GRADUATION FOR STUDENTS WHO WILL COMPLETE REQUIREMENTS AT END OF SUMMER QUARTER.

JULY 4 (THURS.) INDEPENDENCE DAY HOLIDAY (UNIVERSITY-WIDE).

JULY 5, 7:00 am (FRI.) CLASSES RESUME.

JUNE  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30
JULY  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30  31
**AUGUST 2 (FRI.)**
LAST DAY TO WITHDRAW FROM A COURSE OR FROM THE UNIVERSITY. LAST DAY TO CHANGE FROM CREDIT TO AUDIT, IF PASSING. LAST DAY TO REMOVE AN "I" EARNED LAST QUARTER.

**AUGUST 5-8 (MON.-THURS.)**
EDUCATIONAL COUNSELING AND STUDENT ADVISEMENT FOR FALL QUARTER.

**AUGUST 23 (FRI.)**
CLASSES END FOR SUMMER QUARTER. FINAL EXAMINATION GIVEN AT THE DISCRETION OF THE INSTRUCTOR. SPECIAL GRADUATION CEREMONY.

**AUGUST 26, 12 noon (MON.)**
GRADES DUE IN REGISTRAR'S OFFICE.

**JULY 12 (FRI.)**
DEADLINE FOR WITHDRAWAL WITHOUT GRADE PENALTY. LAST DAY FOR REMOVING TEMPORARY STUDENT STATUS.

**AUGUST**
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11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31
INSTITUTIONAL PURPOSE

Florida Technological University has been established as one of the nine state universities in Florida to provide higher educational opportunities to the people of the State through teaching, research, and service. Its assigned role is that of a four-year general purpose institution to offer baccalaureate degree programs, as well as Doctor’s and Master’s degree programs when established criteria for initiating such programs have been attained. Its uniqueness is in emphasizing the development of teaching and research programs in various technologies and the arts and sciences.

Florida Technological University offers baccalaureate degree programs in humanities and fine arts, social sciences, natural sciences and mathematics, business administration, education, engineering, and general studies. Master’s degree programs are offered in business administration, communications, education, engineering, and industrial psychology. Authorization for additional graduate degree offerings in selected disciplines will be sought at appropriate intervals. The University also offers an extension program of credit courses, short courses, conferences, etc., to the citizens of the East Central Florida Region through Continuing Education.

The University has developed an environmental studies program which emphasizes the social, political, and economic implications of technological development in modern society. In addition, developments within this context include opportunities for students to major in computer science, medical technology, inhalation therapy, and medical records science. Future developments will attempt to relate the traditional academic endeavors of the University to the technological orientation of industrial activities in this region of the State.

STATEMENT OF PHILOSOPHY

The philosophy of the University has two basic tenets: first an ACCENT ON THE INDIVIDUAL, and second, an ACCENT ON EXCELLENCE. In view of the growing concern about the loss of individual identity in today’s environment, Florida Technological University is indicating its attitude toward the individual worth of the student, his vitality, his character, and his development by placing an ACCENT ON THE INDIVIDUAL. The campus master plan has been designed to encourage face-to-face communication between students and faculty. One objective of this plan, called the “Village Concept,” is to maintain a small college atmosphere in each of five villages, while at the same time providing educational and enrichment opportunities normally available only in a large university setting. Realizing that some of tomorrow’s leaders will come from today’s students, the University’s accent is not only on the individual but also on THE RESPONSIBLE INDIVIDUAL.

With an ACCENT ON EXCELLENCE, Florida Technological University provides an academic program for each individual student. Programs and courses have been developed to:

Develop the student’s intellectual capacities so that he may have a better understanding of his present environment, the knowledge of his inheritance from past civilizations, and a basis for anticipating and mastering the conditions of his future.

Refine and intensify the student’s powers of thinking and judgment necessary to stimulate his intellectual advancement and to establish him as a productive member of society.

Strengthen the student’s awareness of the privileges and responsibilities of citizenship in a democracy.
Excite the student's intellectual interests and encourage him to continue to seek knowledge throughout his adult life.

Offer the student an opportunity to prepare for a profession and to develop competence in his chosen field— the pivot from which to expand his horizons in all areas of life.

It is our hope that each individual student will join with the others of the university community in striving not just for expansiveness in thought and action but also for excellence. While broadening our horizons, we must not forget to look upward and in seeking perfection “Reach for the Stars.”

MASTER PLAN FOR THE CAMPUS

The campus of Florida Technological University consists of 1,227 acres of land, much of which is covered with handsome pine, palm, cypress, cedar, and oak trees. Lakes and ponds contribute to the natural beauty of the campus. Lake Claire covers approximately forty acres and Lake Lee encompasses about fourteen acres. While the campus is in the process of development, every effort is being made to preserve and enhance the natural beauty of the site.

The University opened in 1968 with the first phase of construction representing an investment of about $8.9 million which included the first phase of the Village Center (Student Union), the Library Building, Science Building and Science Lecture Hall, four Residence Halls and a utilities complex large enough to serve the needs of a small city.

Construction on the second phase of buildings at FTU is complete. The work represents a value of approximately $6.5 million in modern, functional structures: the 31-classroom General Purpose Classroom Building, the Administration Building, and the massive Engineering Building.

Construction of the third phase completed to date includes a $1.4 million expansion of the Village Center and extension of utilities. This phase also includes a Humanities and Fine Arts Building and a Biological Sciences Building. Completion of the former is expected by early 1974. Also included in continuing construction are additional paved parking areas for the steady rise in commuter traffic to the campus.

Growth and progress are keys to the continued move forward at FTU. Enrollment in Fall 1972 stood at slightly over 6,600. By 1978, the student body is expected to reach about 10,000.

THE CAMPUS IN 1972-1973

A winding road lined with oak and pine extends from the main entrance of FTU on Alafaya Trail (SR 520) to the heart of the campus. At the center of what some day will be a vast complex of buildings are the huge Library and Administration Buildings. The two are separated by a large reflecting pool. The imposing five-story Library was the first major building completed at FTU. In addition to housing the library, it contains some classrooms, an instructional media center, language laboratory, radio-TV complex and some faculty offices.

The attractive, new brick and concrete Administration Building, directly across the pool from the Library, houses the offices of the University President, his three Vice Presidents, the Deans of three of FTU’s Colleges, the offices of admissions/registrar, personnel, student affairs, public information, publications, certain key faculty members, and classrooms.

As you look to the right of the Library and Administration Buildings and face east, you see the massive Science Technology Complex that serves as the “headquarters” for the College of Engineering and FTU’s Information Systems. Classrooms, laboratories, and several large lecture halls comprise the majority of space in the $3.4 million Engineering Building.

Adjacent to the Engineering Building is the Science Building,
occupied by the College of Natural Sciences. The structure contains classrooms and teaching and research laboratories. The Science Lecture Hall seats 320 persons and also serves as a well-equipped stage for productions by FTU's Department of Theatre.

To the left of the Library and Administration Buildings is the General Classroom Building, which serves, in addition to classroom space, as offices for two of FTU's Deans and for faculty members.

The Village Center, commonly referred to on other campuses as the "student center" or the "student union," is the focal point of much student activity on the campus. Included in the Village Center are food service facilities, indoor recreational areas and equipment, offices for student organizations, the infirmary, the Department of Music, a huge Assembly Room with seats for 1,000 persons, student study lounge, exhibit area for art shows and the like, and vast patio areas.

Adjacent to the Village Center are four residence halls, capable of housing 432 students. Each of the buildings has quarters for 108 residents. Two of the double-story buildings are for women students; two are for men. Students live in suites composed of a bedroom-study area, a living room, and bath. There are 48 single-person suites in the four buildings; all others are designed for two students.

The outdoor recreational facilities are designed to accommodate the physical education academic programs, the organized intramural program, and the informal recreational activities. Available 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.

RESIDENT CENTERS

Florida Technological University offers a number of upper division and graduate level courses at six 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 course 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 CANAVERAL RESIDENT CENTER
300 University Drive
Cape Canaveral, Florida 32920
(305) 783-0300

FTU GRADUATE PROGRAM IN MANAGEMENT
P. O. Box 4487
Patrick Air Force Base, Florida 32925
(305) 783-5411

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

FTU WEST PALM BEACH RESIDENT CENTER
2101 45th Street
West Palm Beach, Florida 33407
(305) 848-1429
CONTINUING EDUCATION

These courses are offered for individuals who are not within reasonable commuting distance of the University. Most of the students taking credit courses are employed full-time with business, industry, government, and the teaching profession. Off-campus credit courses are generally taught by the University’s regular faculty. In certain instances, highly qualified persons from other educational institutions, as well as from business and industry, provide the instruction. Courses and/or programs are offered by outside requests primarily, although some are scheduled as needs are identified by the University.

NONCREDIT ACTIVITIES

The University is offering an increased number of conferences, institutes, seminars, workshops and short courses which do not carry University credit. These programs, which can be scheduled both on and off the main campus, are developed to meet the educational needs of business, professional, government, service, civic and other groups. Lecturers and discussion leaders come from the faculties of FTU and other educational institutions in addition to highly qualified individuals in various professional areas.

FURTHER INFORMATION

Further information about Florida Technological University’s Continuing Education programs and non-credit activities may be obtained by writing to the Office of Continuing Education and Conferences, ADM 374, Florida Technological University, Post Office Box 25000, Orlando, Florida 32816.

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.

Students who participate in the Co-Op Program will be able to observe direct relationships between their program of study and their employment. As a result of exposure to the “world of work” and having “put to the test” academic theories, the classroom activities of the students will tend to become more relevant and meaningful. The employment will also provide earnings to substantially help support their education.

The Co-Op Program is based on a format under which the student ordinarily alternates between quarters of study and quarters of employment, which does not necessarily extend his graduation date. The student will be placed with business, industry, or a governmental agency anywhere in the world in a work training assignment related to his 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 374 in the Administration Building.
The 1970 population of the East Central Florida region was 922,068. By 1975, according to figures from the East Central Florida Regional Planning Council, population is estimated at 1,229,133. The region is well endowed with a rich heritage of cultural, educational, industrial, and recreational activities.

The public school systems of the area have experienced rapid growth in recent years while maintaining high-quality programs. The several privately supported colleges and public junior colleges have served the higher educational needs of Central Florida, the State, and the Nation for a number of years. Florida Technological University became a part of this group in September of 1968.

The arts flourish in East Central Florida. About 349,000 library volumes are shelved in the Orlando central public library and its eight branches. The Florida Symphony Orchestra, located in Orlando, was the first all-professional symphony orchestra in the State. Each year it presents subscription concerts, as well as pop and children's concerts. The Central Florida Civic Theatre Association has raised $350,000 for a new theatre near the Loch Haven Art Center. In addition, area theatre-goers are enjoying dinner theatre, the FTU Village Players, and the Annie Russell Theatre productions. There are several art galleries and museums in the area, and there is wide participation in the annual Winter Park Sidewalk Art Festival. Housing one of the South's few such attractions, the John Young Museum and Planetarium presents celestial shows, exhibits and displays, many of them space-age oriented.

There are many reasons for Orlando and Orange County's fantastic growth and development in the past two decades: its strategic location as a transportation hub, the growth of clean, light industry, its ideal climate, its proximity to the Kennedy Space Center, and certainly the many cultural activities.

Although some today refer to Orlando as the ACTION CENTER OF FLORIDA, the city is still the "City Beautiful" to many with numerous parks and flower gardens within its confines. Eola Park, Leu Gardens, Loch Haven Park, Mead Gardens, and the Kraft Azalea Gardens in Winter Park are
but a few of the community's many beautiful parks where an array and variety of exotic flowers bloom almost every month of the year. Shopping plazas and stores in the Orlando-Winter Park area run the gamut from modern, air-conditioned malls to quaint boutiques with an Old World atmosphere.

Sports enthusiasts will appreciate the many opportunities for boating, fishing, and swimming. Orlando is the spring headquarters for the American League Minnesota Twins baseball club and the home for the Class A Orlando Twins, a Minnesota farm club. The PGA Citrus Invitational Golf Tournament drawing many top names is held each March at Rio Pinar Country Club, one of a dozen challenging courses in the area. In addition, the Walt Disney World Invitational is a special new feature for golfers.

The world's largest and most famous harness horse training center, owned and operated by the city, is the Ben White Raceway on Lee Road. Tennis, bowling, shuffleboard, sailing, water skiing, jai-alai, dog racing, and most other sports can be enjoyed in the Orlando area regardless of whether a participant's or spectator's viewpoint is desired.

This section of the Bulletin would not be complete without a description of the Florida Disney World. This 43-square-mile complex is located approximately 15 miles southwest of Orlando and adjacent to Interstate 4. Disney World presently consists of a Theme Park similar to Disneyland in California, but five times as large. Adjoining the Theme Park are motels, hotels, a campsite, plus recreation and entertainment facilities for the entire family.

Still in the Phase II planning stage are:

A. 1,000-acre Industrial Park. The Disney staff will work with individual corporations to create a showcase of industry at work. This facility will also provide employment for many residents of Disney World.

B. EPCOT Village (The Experimental Prototype Community of Tomorrow). Since EPCOT will depict urban life 25 years into the future, it will never be complete but will also be introducing, testing, and demonstrating new ideas and new technologies. EPCOT is designed to serve an initial population of 20,000.

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. FTU is a member of the Association.

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: Inhalation Therapy by the American Registry of Inhalation Therapists (ARIT); Medical Record Administration by the Council on Medical Education of the AMA; Environmental, Electrical, Industrial, and Mechanical program options in the College of Engineering by the Engineering Council for Professional Development (ECPD). 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, 1972 (page 24) with an "A" Rating. An "A" rating 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.

The FTU Foundation, Inc. is a corporate body formed with the primary function of assisting the University financially in the financial aid program, scholarship program and in institutional development. The funds raised by the
Foundation for financial aid to students are granted based upon the recommendation of the Director of Student Financial Aid. Requests for assistance should be submitted to the Student Financial Aid Office.

LIBRARY SERVICES

The University Library is designed to provide Florida Technological University students maximum service in the pursuit of their education, as well as to encourage personal and leisure time reading. The collection now numbers more than 150,000 volumes and is growing at the rate of 20,000-25,000 volumes each year. The library is planned as the center of academic activity on the campus, and all books are placed on open shelves to encourage browsing.

The library operates on a full schedule of hours, including evenings and weekends. During all open hours, a well-trained staff of professional librarians is on duty to provide reference service to the library's patrons. In addition, instruction in the use of the library and its resources is available to the students.

The Media Center, operated in conjunction with the University Library, provides films, tapes, slides, sound recordings, and other instructional media for class use and for recreational use. In addition, complete graphic and photographic services are provided to support educational and other programs of the University.

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, books, etc.

Personal checks, when accompanied by a student I.D. card, are honored for the purchase of books and supplies. Checks for cash in amounts up to $20.00 will normally be honored by the Bookstore. Students are urged, however, to use the University's Cashier's window in the Administration Building for this purpose.

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.
STUDENT AFFAIRS

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 educative 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, 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 students meet members of the faculty and administration. They also receive instructional information to facilitate registration.

HOUSING POLICY

I. Regularly enrolled single undergraduate students paying the registration fee for full-time attendance and who are not residing with their parents or legal guardian may be required to live in University residential units to the extent of available facilities. Under the quarter system, regular enrollment is interpreted as nine or more hours. Priority for final assignment is given to those students admitted in good standing.

II. Each applicant to the University will receive a housing application on which he may request a Housing and Food Service Contract EFFECTIVE FOR A SPECIFIED QUARTER. The priority for room reservations is based on the date of receipt of the application in the Housing Office. Applicants should carefully read the application form before submitting it with the $25 advance payment to the Housing Office.

III. ALL HOUSING CONTRACTS ARE FOR ROOM AND BOARD. Two boarding plans are available. A 21-meal plan provides three meals per day, seven days per week; a 15-meal plan provides three meals per day, five days per week Monday through Friday.

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 Health Service is maintained on an out-patient basis for routine and emergency health needs, to promote health education, and to protect the Student Body from communicable diseases. A physician is on campus Monday through Friday during routine clinic hours and is available on an on-call basis for emergencies. A staff of registered nurses is on duty 24 hours
when classes are in session. Medical care in the students' living quarters is not provided. A student health insurance program is in effect for full-time students; participation is optional for part-time students.

It is not compulsory for the student to use the Student Health Service in case of illness or injury, except in matters of public and campus health. The insurance program, however, is based upon the primary utilization of the Student Health Service. Referral will be made in the more serious cases. The right of the student to choose the source of medical care on referral will be recognized. Medical records are privileged communications and will not be released without the consent of the student, except when information is essential to public health.

A campus emergency vehicle, manned by security personnel, is available for transporting emergency cases to the Student Health Service or to local hospitals.

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 November 15 and April 1 for the academic year beginning the following September. All applications received after April 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. Receipt 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 EXPENSES – 1973 - 1974
ACADEMIC YEAR (THREE QUARTERS)

STUDENT BUDGETS

<table>
<thead>
<tr>
<th>Expense Categories</th>
<th>On-Campus Undergraduate</th>
<th>Commuter Undergraduate</th>
<th>Married Undergraduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Fees (Instate)</td>
<td>$ 570</td>
<td>$ 570</td>
<td>$ 570</td>
</tr>
<tr>
<td>Books/Supplies</td>
<td>180</td>
<td>180</td>
<td>180</td>
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<tr>
<td>Room &amp; Board</td>
<td>1,065</td>
<td>600</td>
<td>1,900</td>
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<tr>
<td>Miscellaneous</td>
<td>210</td>
<td>210</td>
<td>780</td>
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<tr>
<td>Clothing &amp; Laundry</td>
<td>200</td>
<td>200</td>
<td>300</td>
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<tr>
<td>Transportation</td>
<td>175</td>
<td>500</td>
<td>400</td>
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<td></td>
<td>$2,400</td>
<td>$2,260</td>
<td>$4,130</td>
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</table>

* Graduate Fees are $720.
Note: Add $1,050 for non-Florida residents.

FINANCIAL ASSISTANCE PROGRAMS
Available at Florida Technological University

LOANS

National Direct Student Loan Program: A long term low-interest loan program sponsored by the Federal Government (HEW) is available to students who show proven financial need and remain in good standing while enrolled at Florida Technological University. The NDSL program funds are administered by the Florida Technological University Student Financial Aid Office. Repayment of loan funds advanced to FTU students on this program begins nine months after attending classes for at least half-time study and may extend over a ten year period. Interest charges of 3% also begin at the start of the repayment period. No repayment is required and no interest is charged for any period up to three years during assignments in the Armed Services, Peace Corps, or Vista. Prepayment is allowed without penalty.

Florida Student Loan Program: Students who have been a legal resident of the State of Florida for the past two years, taking 12 hours or more for credit, and as an undergraduate have at least a 2.0 overall average and an adjusted gross income of $15,000 or less per year are eligible to apply for this loan. Florida Student Loans bear interest at the rate of 4% per year, which begins at graduation or termination as a full-time student. Repayment must begin no later than six months following graduation or termination of full-time college attendance.

Law Enforcement Educational Loan Program: Long-term loans are available to students who desire to seek a career in law enforcement. Eligible students may borrow up to $1,800 per academic year. An applicant must be a full-time student in an undergraduate program. The program of study and/or credit must lead toward a certificate or a degree in a program directly related to law enforcement. The student's program of studies must contain a minimum of 12 quarter credit hours in subjects directly related to law enforcement. Long-term loans carry a 7% simple interest rate per annum and are repayable over a maximum of a ten year period. The principal amount of any loan plus interest shall be canceled for service as a full-time officer or employee of a public funded law enforcement agency at the rate of 25% per annum for each completed year of employment in law enforcement.

Federally Insured Student Loan Program: This Federally sponsored program provides insurance for long-term, low-interest loans made by authorized lenders (banks, savings and loan associations, credit unions, pension funds and insurance companies). The maximum loan amount per academic year (three quarters) is $1500 ($500 per quarter). The total outstanding principal may not exceed $7500 at any one time. The interest rate paid to the lender may vary from 7% to 10%. The Federal Government pays the interest on the loan while the student is in school if he is qualified for
interest benefits (adjusted family income less than $15,000). If not qualified, the student must pay the interest himself.

Repayment of the principal plus 7% simple interest starts between nine and twelve months after the student completes the course of study, leaves school, or is registered for less than six hours of course load. Repayment is normally scheduled to be completed over a five to ten year period. Prepayment is allowed without penalty.

An application for this loan may be picked up at the lending institution or the Student Financial Aid Office.

Emergency Short-Term Loan Program: A limited number of short-term loans have been provided by Student Financial Aid and Traffic Fine Funds. These loans are available at the beginning of a quarter and must be repaid to the University Cashier before the end of the quarter. Due to the limitation of funds, the maximum amount for a loan is the amount of undergraduate fees. There is a 2% service charge made on each loan.

Student Regent-Fee Loan: The S.R.F. Loan is a long-term loan authorized by the Board of Regents with student fees providing the funds. The S.R.F. loan is administered by the Florida Technological University Student Financial Aid Office. Repayment to the University cashier is to begin no later than six months after the borrower graduates or ceases to be a full-time student. Interest at an ANNUAL PERCENTAGE RATE of 3% shall accrue from the date of graduation or termination of full-time college attendance.

SCHOLARSHIPS

There are a number of philanthropic organizations and private donors that offer scholarships to FTU students.

Eligibility varies according to the qualifications established by each donor and/or the Financial Aid Committee.

Refer any questions you may have regarding eligibility to the Financial Aid Office or to the college in which you are presently, or expect to be, enrolled.

There are four kinds of scholarships available to FTU students:

1. COLLEGE AWARDED SCHOLARSHIPS

These scholarships are awarded annually by the various colleges to students who have maintained a high level of academic achievement while enrolled at FTU. These awards may or may not require proven financial need.

Athletic Service Awards (Amount varies) Offered by the Department of Physical Education to students participating in Varsity athletics.

Central Florida Personnel Association ($225) - Offered to three Business Administration Management majors with a 3.0 minimum GPA.

Loren O. Evans Memorial ($250) - Recipient awarded by the College of Engineering.

Florida Engineering Society ($570) - The College of Engineering recommends one junior and one senior engineering major.

Federal Government Accountants Association - Cape Kennedy Chapter ($200) - Recipient must be a junior or senior Accountancy major. An essay is required.

Inhalation Therapy Scholarship (Amount varies) - Recipient must be a senior majoring in inhalation therapy.

Louis Volkswagen Scholarship ($250) - Four scholarships are awarded to Business Administration or Natural Sciences majors. Recipients must participate in athletics.

Osburn Henning and Company Accountancy Scholarship (Amount varies) - Awarded to one junior and one senior accountancy major.

Rossini Music Scholarship ($250) - Recipient must be a music major.
2. CONCURRENTLY AWARDED SCHOLARSHIPS

These scholarships are available to students who have maintained a high level of academic achievement and qualify for financial assistance. The recipients are selected through the cooperative effort of the various colleges and the Student Financial Aid Committee.

Alpha Delta Kappa Scholarship ($290) – Recipients must have a 3.0 GPA, prove financial need, be an Orange County resident, and desire a teaching career.

William Beardall Scholarship ($540) – Recipient must maintain a 3.0 GPA and be on the FTU baseball team.

William B. Calkins Scholarship ($200) – Students with proven financial need from the immediate Central Florida area, are selected from each college and graduate school as recipients.

Delta Kappa Gamma Scholarship ($200) – Awarded to an Orange County resident, preferably a transfer student from Valencia Community College.

Farm Bureau Agricultural Scholarship ($300) – Recipient must be an Orange County resident with financial need, seeking a career in agriculture.

Honeywell Information Systems, Inc. Scholarship ($570) – Awarded to a minority group member majoring in computer science.

Merlin Mitchell Scholarship ($750) – Awarded to a student majoring in a field related to conservation.

Red, Red Rose Scholarship ($50) – Recipient must be a Valencia Community College transfer student.

Rotary International Foundation Scholarship (1 year sponsored) – Awarded to a graduate student interesting in studying abroad. Outstanding seniors are considered. Must have a language proficiency.

3. STUDENT FINANCIAL AID AWARDED SCHOLARSHIPS

These scholarships are awarded to students who have maintained a high level of achievement and qualify for financial aid. The recipients are selected by the Financial Aid Committee.

Orange County Association of Educational Secretaries Scholarship ($570) – Recipient must be a junior Business Education major.

John E. Stonington, Jr. Scholarship ($750) – Awarded to a graduate of Winter Park High School with outstanding leadership qualities.

Student Government Scholarship (Amount varies) – FTU students are awarded these scholarships annually.

Winter Park Coterie Club ($500) – Recipient must be a qualified Winter Park resident.

4. CUSTODIAL AWARDED SCHOLARSHIPS

These scholarships are awarded to students selected by a particular agency or custodial donor. The Student Financial Aid Office disburses the award quarterly or annually according to the wishes of the donor.

Air Force ROTC Program (Tuition, fees, books and $700 a month) – Recipient must be an ROTC student with high scholastic achievement.

Air Force Aid Society ($100 - $1500) – Awarded to dependents of USAF personnel: deceased, retired, or on active duty. Recipients must be unmarried.

American Business Women's Association (Futura Chapter) Scholarship ($250) – Recipient awarded by the donor.

Charles O. Andrews Memorial ($1000 for four years) – Applicants must be students of law, business, or athletics and maintain an "A", "B" or a 3.0 GPA.

ARW Scholarship ($1950) – The recipient may renew this award for the duration of an undergraduate program.

Boise Cascade Safety Achievement Scholarship Plan ($325) – Recipient must be a dependent of an employee of the Boise Cascade Corporation.

Brecht Scholarship ($570) – Awarded to a resident of Brevard County.
Canaveral Post Society of American Military Engineers Scholarship ($300) — Recipients selected by the donor.

College Entrance Examination Board Upper-Division Scholarship ($750) — Recipient selected by the donor.

Corps of Engineers Scholarships ($100) — Recipient selected by the Corps.

Council of Delta Kappa Gamma Scholarship ($300) — Candidate chosen by the Orange-Osceola Coordinating Council.

Joseph Curran Scholarship ($1800) — Recipient selected by the National Maritime Union of America, AFL-CIO.

Florida Baptist Convention Scholarship ($500) — Student selected by the educational division of the Florida Baptist Convention.

Florida Concrete and Products Association, Inc. Scholarship ($500) — Recipient selected by the donor.

Glades Electric Cooperative Scholarship ($600) — Recipient must be a Florida resident.

Halifax Area Citizens' Scholarship ($300) — Recipient selected by the donor.

Hallbeck Memorial Scholarship ($500) — Administered by the American Postal Workers Union.

Richard C. Knight Insurance, Inc. Scholarship ($1000) — Recipient selected by the donor.

Lodi High School Bank Scholarship ($200) — Recipient selected by the donor.

Ministerial Education Fund of Florida Scholarship ($500 - $600) — Candidates are chosen by the First United Methodist Church.

National Association of Secondary Schools — Principals' Scholarship ($1000) — Recipient awarded by the National Honor Society.

National Merit Scholarship ($100 - $1500) — Recipients must have a superior score on a qualifying exam.

Naval Training Center Scholarship ($880) Recipient awarded by the Naval Training Equipment center.

Navy Relief Society Scholarship (Amount varies) — Recipients must meet committee standards.

Northern Burlington Regional Student Council Scholarship ($100) — Recipient selected by the donor.

Anderson Air Force Base Officers' Wives' Club, Guam, Scholarship ($1000) — Recipients selected by the donor.

Orange County Council of PTA Scholarship ($500) — Recipient selected by the donor.

Lou and Lillian Padolf Scholarship ($150) — Recipient selected by the donor.

Patchogue Kiwanis Club Scholarship ($500) — Awarded to a deserving student by the Kiwanis Club.

Pennsylvania Higher Education Assistance Agency Scholarship ($414) — Candidates must be in need of assistance as a result of the June floods (1972).

Piper Foundation Scholarship ($100) — Recipient selected by the donor.

Bert Rodgers School of Real Estate Presidential Award Scholarship ($500) — Awarded by a Board of Trustees to students interested in specializing in the field of real estate.

Royal Neighbors of America ($500) Recipient must be a freshman and a member of the Royal Neighbors of America, Kansas Lodge.

Seabee Memorial Association Scholarship ($400) — Recipient must maintain a better than 3.0 GPA.

Sebring High School Scholarship ($300) — Recipient selected by the donor.

Sorosis Scholarship ($250) — Awarded to a female student by Sorosis.

South Brevard City Panhellenic Scholarship ($600) — Recipient selected by the donor.

Stanley Home Products, Inc. Scholarship ($750) — Recipients selected by the donor.
Allen Trovillion, Inc. Scholarship ($570) Recipient must be the dependent of a former employee, now deceased, of Allen Trovillion, Inc.

West Orange Scholarship Foundation ($200) — Selection made by the Foundation Committee.

Winn-Dixie Stores Scholarship Foundation ($500) — Recipient must be an employee of the Winn-Dixie Company.

Women's Club of Winter Park scholarship (Amount varies) Recipients are chosen by the Women's Club Committee.

Women Marines Association Scholarship ($500) — Recipient is selected by the Women Marines Association.

GRANTS

Educational Opportunity Grant Program: The Educational Opportunity Grant is a Federal Government program designed to provide assistance for qualified students who are of exceptional financial need. Applicants for this program must be accepted for enrollment or be in good standing as a full-time undergraduate student. They must also be a citizen of the United States, or live in the United States for other than a temporary purpose and intend to become a permanent resident thereof. Students must show evidence of academic and creative promise and capability of maintaining good standing in their course of study. Funds under the Educational Opportunity Grant Program may be awarded in the maximum amount of $1000 or one-half of the total amount of student financial aid need. Applicants must need and agree to accept an equivalent amount of matching funds made available through the institution from such sources as loans, scholarships, and employment programs.
Law Enforcement Education Grant: The Law Enforcement Student Grant Program is intended to act as an incentive for in-service law enforcement personnel to increase their competence and their value to their employing agencies through the education process. The grant program makes available funds for tuition, fees and books only, not to exceed $200 per academic quarter. The grant program is restricted to full-time in-service law enforcement officers of local, state and federal units of government. Eligible students may enroll for part-time or full-time study in courses for which credit may be earned that may be applied in satisfying the requirements for an Associate of Arts degree.

Grant funds may be advanced only to applicants who enter into an agreement with the Justice Department to remain in the service of their law enforcement employment agency for a period of two years following completion of any course for which grant funds are used. Grant funds are to be awarded to in-service law enforcement officers without regard to financial need.

Non-Florida Tuition: Non-Florida Tuition Scholarships Waiver: The Board of Regents has authorized the University to waive tuition for a limited number of non-Florida residents. These waiver units will be awarded to non-Florida students having the skills or abilities which will make a positive contribution to the academic environment of faculty and students at Florida Technological University. This contribution may be in the areas of academics, athletics, music, drama or fine arts, and to graduate assistants and foreign students. Under current guidelines, the student should contact his individual college for authorization of a waiver.

EMPLOYMENT: PART-TIME

College Work-Study Program: This is a Federal program designed to provide a student the chance to earn part of his educational expenses by working at a part-time job. In order to be employed under the College Work-Study Program, the student must: (1) be enrolled or accepted for enrollment as a full-time student; (2) show evidence of exceptional financial need; (3) be capable of maintaining good academic standing while employed under this program.

Employment under the College Work-Study Program is limited to 15 hours per week while classes are in session. During vacation periods and summers, students may work up to 40 hours per week, subject to the availability of funds.

FTU On-Campus Part-Time Employment OPS: The various colleges and departments through funds provided for their use by Florida Technological University, State of Florida, or other specific grants offer part-time employment for an estimated three hundred students.

The work duties vary from basic clerical, or filing, to advanced secretarial or computer programming type employment.

To secure this type job a student should contact the Student Financial Aid Office or their respective college or department area. Financial need is not a requisite for this employment.

SUMMARY

All financial aid is dependent upon the availability of resources. To be considered for financial aid, an applicant must be a full-time student with a minimum of 12 hours per quarter, be in financial need, make normal academic progress, and be of good character. An award cannot be made until the applicant has been accepted for admission to Florida Technological University. However, applicants should not wait for notice of acceptance but should apply as soon as possible after November 1. The Office of Student Financial Aid reserves the right to cancel or refuse to renew financial aid to any student who uses these program funds for unreasonable, non-college related expenditures.
PLACEMENT CENTER

Career planning, campus interviews, and employer contacts are essential aspects of the Placement Center. The provision of these services, however, requires the development of student personnel files and resumes as well as the accumulation of an extensive amount of information pertaining to job opportunities in business, industry, government, and education. Both career planning and job placement are facilitated through early student contacts with the Placement Center.

All students are urged to register with the Placement Center at least three quarters prior to graduation. All inquiries should be directed to the Director of Placement.

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, and developing speech or hearing skills. 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 Technological 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 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 Technological 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.

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, 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

Campus athletics at FTU cover a wide range of activities from the intramural co-ed sports such as frisbee and football to varsity teams in basketball, wrestling, tennis, and baseball. There is something for everyone interested in participating, either for sheer competition, being a member of a team, or a love of physical exercise. Blessed as it is with a most temperate climate, FTU is able to offer many outdoor sports on a year around basis on its 1,227 acre campus.

INTRAMURALS

Composed of team, dual, and individual competition, intramurals 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 and runners-up. Sports in the intramural program range from flag football and water polo for male students to powderpuff football, volleyball, and softball for the women. There is a total of 18 sports for men, 12 for women, and six that pair men and women.

EXTRAMURALS

As the name implies, extramurals are a step up in the sports program. Activities are not limited to on-campus competition and are open to students only. These so-called club teams meet regularly with teams from other campuses in and out of Florida and also compete in industrial leagues. Each program has a qualified coach and also serves as a basis for possible inclusion in FTU's varsity program. For men, there are soccer, golf, crew, archery, weightlifting, and swimming. All of FTU's four current varsity sports began in the club team status.
INTERCOLLEGIATE

Full recognition of FTU as a competitor in varsity athletics came when the University was granted membership in the college division of the NCAA in late 1972. The program is limited to men only and, at FTU, covers basketball, wrestling, tennis, and baseball. As the intercollegiate program grows with the University, scheduling takes on “bigger and better” foes from some of the ranking colleges and universities in the southeast and other areas of the country. This slow building process is consistent with the overall philosophy of FTU, which places emphasis on the welfare of every student and his academic achievements.

ENVIRONMENTAL STUDIES PHYSICAL EDUCATION

Course listings for physical education electives are to be found on page 259.

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.
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.

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):

ON-CAMPUS COURSES

<table>
<thead>
<tr>
<th></th>
<th>Resident</th>
<th>Non-Resident</th>
</tr>
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<tbody>
<tr>
<td>Undergraduate</td>
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<td></td>
</tr>
<tr>
<td>Full-time (9 hours or more)</td>
<td>$190.00</td>
<td>$540.00</td>
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<tr>
<td>Part-time (8 hours or less)</td>
<td>16.00 per hour</td>
<td>43.00 per hour</td>
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<tr>
<td>Graduate &amp; Post Baccalaureate</td>
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<tr>
<td>Full-time (9 hours or more)</td>
<td>240.00</td>
<td>590.00</td>
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<tr>
<td>Part-time (8 hours or less)</td>
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<td>47.00 per hour</td>
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<tr>
<td>Cooperative Education</td>
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<tr>
<td>Registration Fees</td>
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For purposes of assessing fees, a full-time student is an individual who registers for 9 quarter hours or more.

OFF-CAMPUS COURSES

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<thead>
<tr>
<th></th>
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<th>Non-Resident</th>
</tr>
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<tbody>
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<td>Undergraduate</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>$19.00 per hour</td>
<td>$46.00 per hour</td>
</tr>
<tr>
<td>Graduate &amp; Post Baccalaureate</td>
<td>23.00 per hour</td>
<td>50.00 per hour</td>
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</tbody>
</table>

C. Room and Board (required of student living in University residence halls) per quarter $325.00 - $355.00

Charge for late payment .................. $15.00

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

E. Late Registration (for all students who register after the time provided under the academic calendar)
   Full-time student ..................... $25.00
   Part-time student .................... $10.00

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

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.

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.

A. Full refund up to the end of the "drop/add" period.

B. No refund after the end of the "drop/add" period, except:

1Effective Fall Quarter, 1971.
1. Involuntary call to active military service (full refund less $43.00).

2. Death of student (full refund less $43.00).

3. Where a student contracts an incapacitating illness of such duration and severity as to prevent the successful completion of the academic program for the term enrolled, (Full refund less $43.00).

No refunds will be made under this policy except upon proper application. Commensurate refunds will be made to part-time students and this shall consist only of amounts which were collected for credit to the Incidental Revenue Fund.

**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.
ADMISSION REQUIREMENTS
First-time College and Transfer

FRESHMAN APPLICANTS (First College Attended)

The following classes of applicants are eligible for consideration as candidates for admission to credit courses. Eligibility is subject to satisfactory receipt and review of all items requested in the admissions process. All applicants must have earned 12 high school academic units (i.e., from the areas of English, foreign language, mathematics, science, or social studies).

Graduates of Accredited Florida High Schools who receive a favorable character recommendation from officials of their high school, have an overall average of "C" or better for all academic subjects, and have earned a minimum score of 300 on the Florida State-Wide Twelfth Grade Test.

Graduates of Accredited High Schools Outside Florida and Foreign Applicants who receive a favorable character recommendation from officials of their high school, have grades placing them in the upper 40 percent of their graduating class, and have acceptable test scores, i.e.:

900 total or higher on the SAT (CEEB) — with no lower than 400 on either the verbal or math portion

21 composite or higher on the ACT

60% or higher on the CQT (Senior College Freshman Norms).

Graduates Possessing a State High School Equivalency Diploma based upon General Education Development testing (recommended GED scores totaling 275 or better) who have an acceptable high school record for any portion attended, have an acceptable test score and, where necessary, a favorable recommendation from their employer.

Graduates Who Meet Requirements in the First Two Categories Above, But Who Were Graduated from a Regionally Unaccredited High School may enter on provisional admission. By obtaining a 2.0 (C) GPA or better at the end of the quarter during which 12 or more quarter hours are attempted, the provisional status shall be removed.

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. Occasionally, it may be recommended that a student attend a Junior College to further his competency and to earn an Associate of Arts degree before reapplying to FTU.

High School Graduates Who Score Below 300 on the Florida State-Wide Twelfth Grade Test and who have an above average high school record will be considered for admission assuming the other requirements previously stated have been met.

TRANSFER APPLICANTS

Undergraduate students transferring to degree programs from another institution must have a minimum 2.0 (C) GPA on all college work previously attempted, must be eligible to return to their last previously-attended institution, and must present a satisfactory score on a general ability test. Should the applicant have less than 90 quarter hours of transferrable college credit and not possess a university parallel degree from an approved Florida junior college, he must meet the University's freshman entrance requirements.

Only credits in which the applicant has achieved a grade of "D" (1.0) or better are transferable.

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. However, evidence of satisfactory completion will be posted on the student’s permanent record.

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.

Completed 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 (e.g., See Undergraduate Degree Requirements, page 48 and Second Bachelor’s Degree, page 57).

Transfer students from Florida State Junior Colleges or Universities may satisfy the Basic Environmental Studies Program requirements by completing, prior to transfer, the general education program prescribed by the junior 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 Junior College Transfers. Admission to the University is normally granted to any graduate of an accredited junior college in the State of Florida who has completed the college parallel program and graduated with a 2.0 GPA based upon all work attempted.

Admission Standards for all Florida state-supported universities are established by the Florida Board of Regents.*

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 are entering from unaccredited colleges, may enter on provisional admission. By earning a 2.0 GPA or better at the end of the quarter during which 12 or more quarter hours are attempted, the provisional status shall be removed and any credit to be transferred may be validated.

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 meets weekly to review marginal cases and to consider the appeals of applicants.

ADMISSIONS — Provisional

Students who transfer from regionally unaccredited high schools or colleges shall be admitted provisionally. Failure to perform satisfactorily will result in the student’s being placed on warning, probation, or disqualification, as his academic record warrants.

APPLICATION DEADLINE

Applications for admission should be received 28 days prior to the first day of classes for the quarter in which the student wishes to enroll (consult calendar for exact date). Candidates

*Board of Regents Manual pages 2-50 through 2-55.
whose applications have not cleared because of failure to receive supporting documents on time, may be admitted on a temporary basis and required to register at late registration and pay a late registration fee.

RECORDS DEADLINE — All Support Documents

All records requested should be received not later than 15 days preceding the first day of classes, otherwise the applicant may be required to register on a temporary basis at late registration period and pay a Late Registration Fee. Records of Temporary Students must be officially received within four weeks (20 class days) from the first day of classes, or the student may be withdrawn at the discretion of the University Registrar and no fees will be refunded.

RECORDS — Validity of Support Documents

All support documents indicated in the Application for Admission must be received directly from the issuing institution, testing agency, or physician.

READMISSION

Students not in attendance during an academic quarter (exclusive of the summer term) or who withdrew from the University before the end of a quarter (including the most recent quarter), must submit an application for readmission and such other information as may be required. The application must be returned not later than two weeks before the beginning of the quarter of expected attendance (see calendar).

Readmission of a disqualified student is not automatic after the mandatory one quarter out. 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.

CONCURRENT ENROLLMENT

Concurrent enrollment in another institution is permitted only when approval to be a transient student has been obtained.

SPECIAL STUDENTS

Students of demonstrated academic ability who do not meet the regular requirements for admission may register for occasional courses at FTU. Permission to enroll in this Special Student category should be obtained from the Dean of the College in which the student wishes to take course work.

If the prospective special student is a minor, in addition to the above he must:

1. obtain the written permission of his parents,
2. request a statement of recommendation from the principal of his high school or, if employed, from his employer (to be mailed directly to the University Admissions Office, and
3. have an interview with the Director of the Developmental Center.

Applications may be obtained from the Admissions Office.

Failure to perform at a “C” level in all courses attempted at FTU will result in a student being unable to take further courses until he has met the regular requirements for
admission.

All credits earned at FTU will always be a part of the student's permanent record.

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), except summer terms which are granted a maximum of two weeks (first 10 class days), to furnish all required records. Failure to do so, or if records indicate ineligibility, will result in withdrawal at the discretion of the University Registrar and no fees will be refunded.

TRANSIENT STUDENTS

FTU Students. A Florida Technological University degree-seeking student who wishes to earn credit at another college or university must obtain prior permission and approval of 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.

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 statement of good standing (on the FTU Transient Form) indicating their willingness to accept the credits earned is required by the parent institution in lieu of official transcripts and other supporting documents.

AUDIT STUDENTS

University Students. Any degree credit student may be admitted to a class as an auditor with the approval of the chairman of the department in which the course is offered. For degree credit students, a course may be changed from audit to credit only during the Add-Drop Period and then only with his faculty adviser's consent. Auditors will not receive university credit, nor is the instructor obligated to administer any tests.

No student may change from credit to audit unless passing.

Non-University Students. With the approval of the chairman, any person not enrolled in the University may be admitted to classes as an auditor if the class is not already filled. A simplified application may be completed and registration accomplished at one of the two late registration periods scheduled during the Add-Drop Period. No late fee is required, no university credit is given, and the instructor is under no obligation to give tests to auditors. Those admitted shall pay the normal fees per quarter hour, and no refund is possible after a class has been attended. The University reserves the right to deny admission as an auditor without cause.

CONTINUING EDUCATION STUDENTS

Application, registration, and payment of fees for those taking a course off-campus may be completed prior to, or during, the first or second class meeting. Receipts will be mailed to students registering during the first or second class. No registration will be accepted after the first class meeting of the second week. The regular institutional calendar will apply to Continuing Education classes with the following exceptions:

No late registration fee will be charged.
Enrollment in these courses will be closed after the end of the first class meeting of the second week.

The student may receive a complete refund if he withdraws prior to the end of the first class meeting of the second week.

The Add-Drop Period will extend through the end of the first class meeting of the second week.

**NON-DEGREE STUDENTS – On Campus**

An individual (21 years or older) may enroll as a non-degree student without meeting all admission requirements established for degree seekers. Non-degree applicants must, however, provide a satisfactory basis for admission (e.g., transcripts, test score, and letter of recommendation).

In order to change to degree-seeking status, a non-degree student must provide all academic records required of degree seekers. Where necessary, 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 32 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.

Persons under 21 years of age wishing to enter as non-degree students must meet the same admissions requirements established for degree programs.

**FOREIGN 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.

**HEALTH AND CITIZENSHIP**

All full-time applicants (9 or more quarter hours) must furnish a health report on the approved university health form. It must be submitted to and approved by the Student Health Service before registration will be allowed. The Health Form will be mailed to all applicants along with the receipt for the Application for Admission.

**FLORIDA RESIDENCE**

For the purpose of assessing registration fees, students shall be classified as Florida and non-Florida. A Florida student is a person who shall have resided and had his domicile in the State of Florida for at least twelve (12) months immediately preceding the first day of classes of the current term.

In applying this policy “student” shall mean a person admitted to the institution. If such person is a minor, it shall mean parents, parent, or legal guardian of his or her person.
The word “minor” shall mean a person who has not attained the age of 21 and whose disabilities of minority have not been removed by reason of marriage or by a court of competent jurisdiction.

The word “domicile” for fee-paying purposes shall denote a person’s true, fixed, and permanent home and place of habitation. It is the place where he intends to remain, and to which he expects to return when he leaves without intending to establish a new domicile elsewhere.

The word “parent” shall mean a minor’s father; or mother; or if there is a guardian or legal custodian of his person, then such guardian or legal custodian.

In all applications for admission by students as citizens of Florida, the applicant, or, if a minor, his parents or legal guardian shall make and file with such application a written statement under oath that such applicant is a bonafide citizen, resident, and domiciliary of the state of Florida entitled as such to admission upon the terms and conditions prescribed for citizens, residents, and domiciliaries of the State.

A non-Florida student is a person not meeting the requirements outlined above. A non-Florida student (or if a minor, his parent or parents) after having been a resident and domiciliary of Florida for twelve months may apply for and be granted reclassification prior to the first day of classes of any subsequent term, in accordance with the provisions of the preceding paragraph. In addition, the application for reclassification must be accompanied by a certified copy of a declaration of intention to establish domicile filed with the clerk of the Circuit Court as provided by Section 222.17, Florida Statutes.

Unless the contrary appears to the satisfaction of the registering authority of the institution at which a student is registering it shall be presumed that:

1. The spouse of any person who is classified or is eligible for classification as an in-state student is likewise entitled to classification as an in-state student.

2. A minor whose parent is a member of the armed forces and stationed in this state pursuant to military orders is entitled to classification as an in-state student. The student, while in continuous attendance, shall not lose his residence when his parent is thereafter transferred on military orders. A member of the armed forces of the United States stationed in this state on military orders shall be entitled to classification as an in-state student while on active duty in this state pursuant to such orders.

3. No person over the age of 21 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 in the State.

4. Any person who remains in this State when his parent, having therefore been domiciled in this State, removes from this State, shall be entitled to classification as a Florida student, so long as his attendance at a school or schools in this State shall be deemed “continuous” if the person claiming continuous attendance has been enrolled at a school or schools in this State as a full-time student, as such term is defined by the Board of Regents, for a normal academic year in each calendar year, or the appropriate portion or portions of such years, thereof, since the beginning of the period for which continuous attendance is claimed. Such persons need not attend summer sessions or other intersessions beyond the normal academic year in order to render attendance “continuous.”

Any student granted status as a Florida student which status is based on a sworn statement which is false shall, upon a determination of such falsity, be subject to such disciplinary sanctions as may be imposed by the president of the university, which sanctions may include permanent expulsion.
from the State University System or any lesser penalty.

The following categories shall be treated as Florida residents for tuition purposes:

1. Veterans of the United States of America retired with twenty (20) years or more of active military service, including dependent members of their immediate families, who are in Florida at the time of retirement, or who move to Florida within one year following retirement and intend to make Florida their permanent home.

2. Full-time elementary, secondary, and junior college faculty members under contracts in the State of Florida.

3. Full-time faculty and career employees of the University System and members of their immediate families. (This is construed to exclude the spouse of students.)

To establish Florida residence a student applying for admission should complete the residence affidavit on the application form.

To change status from non-Florida to Florida a student must present to the Admissions Office a copy of the Declaration of Intention to Establish Domicile and the completed Residence Affidavit Form. To claim the military exception the student must furnish the Admissions Office a copy of the military orders showing assignment to Florida. A public school official must submit a written statement from his superior as to his public school status. A University employee must submit a statement from his employer as to his employment status.

ORIENTATION AND ADVISEMENT

After the applicant has been advised of his admission, he will be assigned a priority number and time for registration. However, prior to registration, he is required to attend a University orientation program to be followed by a conference with his academic advisor. An advisor will be assigned from the department of the student's major; however, each student will be expected to study the bulletin carefully and will be responsible for meeting the University's requirements as well as those of his own College and major.

Each applicant accepted will be notified by the Student Affairs Division of a definite appointment time for orientation and academic advisement which normally occur a few days prior to registration. At advisement, a proposed schedule of classes will be prepared and approved on an "Advisement and Trial Schedule" form. This form must be presented at registration along with the "Notice of Final Acceptance".

TRANSFER OF "D" GRADES

Credits earned in courses transferred with "D" grades will count towards 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.

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 Advanced Placement Program (A.P.P.), the College Level Examination Program (CLEP), the University Course Credit by Examination Program, the Early Admissions Program, and the Reduced Credit-Hour Program.

1. Advanced Placement Program (A.P.P)

Students who have participated in the Advanced Placement Program in high school and received a score of 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
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 67.5 quarter hours of university credit under the CLEP program. Information on the number of quarter hours of credit to be awarded for specific CLEP examinations can be obtained by contacting the University Admissions Office.

3. University Course Credit by Examination

Students enrolled 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 of 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.

Permission to take an examination is granted by the Dean of the college in which the course is offered and is subject to the following conditions:

a. The student must be currently enrolled and in good standing.

b. The credit will be awarded at the end of the quarter in which the examination was taken.

c. The appropriate grade will be recorded on the Student's Permanent Record. Only grades of "D" or higher will be counted toward the student overall G.P.A.

Standard forms requesting university course credit by examination may be obtained from an advisor or in the departmental chairman's office.

4. Early Admission Program

Students who have demonstrated exceptional academic ability may be permitted to enroll as full or part-time students at Florida Technological University any time after completion of the junior year in high school. To be considered for Early Admission, applicants must have:

a. Test scores near the top 15th percentile statewide or nationally (FTG - 420 or above, SAT - 1100 or above, ACT - 24 or above).

b. "A" - "B" grades in high school

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.

Students desiring to participate in this program should contact the University Admissions Office.

5. Reduced Credit-Hour Degree Program

Florida Technological University has initiated an experimental program which will permit a student to complete baccalaureate degree requirements with less than the normal 180 quarter hours. The purpose of the program is to eliminate content overlap between university and high school courses, particularly when the intent of the university general education program has been met. A maximum of 45 quarter hours of university credit may be waived in this program. To be considered for this program an applicant must:

a. Be a first-time-in-college freshman

b. Have a Florida 12th grade test score of at least 400 (or other equivalent test scores) and have completed selected high school courses with a grade of "B" or higher.

c. Have campus interviews by appropriate FTU personnel to identify equivalency between the content of courses completed in high school and similar courses required by the university.

Where content equivalence exists between high school and FTU courses, the university requirement including credit hours will be waived, thereby reducing the 180 hour degree requirement. For additional information contact the Office of the Associate Vice President for Academic Affairs.
DEGREE REQUIREMENTS

UNDERGRADUATE

The University graduation requirements must be met by each student who wishes to receive a degree from Florida Technological University.

The minimum bachelor degree requirements for all students are as follows:

A minimum of 180 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 300-level courses or above.

A minimum of (and the last) 45 quarter hours must be earned in residence at FTU.

A maximum of 45 quarter hours of extension, correspondence, Armed Forces credit, credit by examination and CLEP are applicable toward a degree.

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, his continuous attendance would begin with his most recent admission. Summer quarters are not included in determining interrupted attendance. Except for the foregoing, the Administrative and Academic Policies of the current Bulletin will be considered official for graduation. A junior college graduate may elect to use the FTU Bulletin in force at the beginning of his most recent continuous attendance at the junior college, provided his attendance continues uninterrupted including his transfer to FTU.

GRADUATE

The University graduation requirements must be met by each student who wishes to receive a degree from Florida Technological University. To meet minimum master's degree requirements, all students must complete at least 45 quarter credit hours of graduate work, with a minimum average of "B" for all courses attempted. At least one-half of the minimum required course work must be numbered 600 or higher.

Additional degree requirements are specified in this Bulletin in the section on Graduate Studies and in the appropriate sections of the individual colleges offering graduate programs.

All students must take the Graduate Record Examination (GRE), except those students in Business Administration who must take the Admission Test for Graduate Study in Business (ATGSB).

DEGREES OFFERED

ASSOCIATE OF ARTS DEGREE

Florida Technological University students who satisfactorily complete 90 quarter hours of acceptable college level 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 45 credits must have been earned in residence at FTU.

The Associate of Arts Degree is awarded on application only, and an application must be made before the end of the Add-Drop Period of the quarter in which requirements are to be completed. Once the student has made application for the A.A. degree, the Registrar will notify the Dean of the appropriate college for verification of requirements. When the Registrar is notified of verification he will forward a certificate to the appropriate Dean for signature and forwarding to this degree recipient.

UNDERGRADUATE

The University offers the degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Science in Business Administration, Bachelor of Science in Engineering, and Bachelor of Engineering Technology. These degrees are available in the following Colleges, with major and options or areas of concentration as indicated:
I. BACHELOR OF ARTS (B.A.)
College of Education
   Major: Elementary Education
   Major: Secondary Education
   Specializations: Biology, Business Education, Chemistry, English, Foreign Languages, Mathematics, Physics, Social Sciences, Speech
   Comprehensive (1-12) Music, Physical Education, Visual Arts

College of Humanities and Fine Arts
   Majors: Art, English, Foreign Languages (French and Spanish only), History, Humanities, Music, Theatre

College of Social Sciences
   Majors: Communication, Economics, Law Enforcement, Political Science, Psychology, Sociology

II. BACHELOR OF SCIENCE (B.S.)
College of Natural Sciences
   Majors: Biological Science (with options in Biology, Biotechnology, Botany, Fresh Water Ecology, Microbiology, and Zoology), Chemistry, Computer Science, Inhalation Therapy, Mathematics, Medical Record Administration, Medical Technology, Physics, and Statistics

III. BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION (B.S.B.A.)
College of Business Administration
   Major: Business Administration, with areas of Administration, Economics, Finance, Management, Marketing

IV. BACHELOR OF SCIENCE IN ENGINEERING (B.S.E.)
College of Engineering
   Major: Engineering, with areas of concentration in Civil Engineering and Environmental Sciences, Electrical Engineering and Communication Sciences, Engineering Mathematics and Computer Systems, Engineering Mechanics and Materials Sciences, Industrial Engineering and Management Systems, Mechanical Engineering and Aerospace Sciences, plus other interdisciplinary areas such as Biomedical Engineering, Engineering Design, Engineering Operations, Engineering Physics, Systems Engineering

V. BACHELOR OF ENGINEERING TECHNOLOGY (B.E.T.)

VI. B.A. OR B.S. IN GENERAL STUDIES
   Offered through the office of the Vice President for Academic Affairs

GRADUATE

Graduate degrees are available in the following colleges:

1. College of Business Administration
   Master of Business Administration (M.B.A.)
   Master of Science (M.S.) in management

2. College of Education
   Master of Education (M.Ed.)

1See General Studies
3. College of Engineering
   Master of Science in Environmental Systems Management* (M.S.E.S.M.)
   Master of Science in Engineering (M.S.E.)
   Master of Science (M.S.)

4. College of Natural Science
   Master of Science (M.S.) Biological Science
   Master of Science (M.S.) Computer Science

5. College of Social Sciences
   Master of Science (M.S.)-Industrial Psychology
   Master of Arts (M.A.) – Communications
   Master of Public Policy (M.P.P.)

**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; e.g., Psychology, Engineering, Humanities. Sections 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**

There 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:

*Funded by RETRO
A. Excellent ........................................ 4 grade points
B. Good ........................................... 3 grade points
C. Average ........................................ 2 grade points
D. Passing ........................................ 1 grade point
F. Failure ......................................... 0 grade point
W. Withdrawn ...................................... 0 grade point
WF. Withdrawn Failing ......................... 0 grade point
WP. Withdrawn Passing ......................... 0 grade point
I. Incompleted .................................... 0 grade point
X. Audit (no credit) .............................. 0 grade point
S. Satisfactory (credit or non-credit course) 0 grade point
U. Unsatisfactory (no credit) .................. 0 grade point
R (followed by grade)
  - Subsequently repeated (no credit) ......... 0 grade point

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 of "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 when requirements for the removal of the "I" have been completed. Failure to complete course requirements by the eighth week of the next successive quarter (that is, during the quarter immediately following that in which the "I" was assigned) 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 during the following 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

Each student graduating from Florida Technological University will, as his achievement warrants, be recognized in the graduation program and have these honors posted on his permanent record, according to the following schedule of grade point averages.

1. Total grade point average 3.80 to 4.00 - summa cum laude
2. Total grade point average 3.60 to 3.79 - magna cum laude
3. Total grade point average 3.40 to 3.59 - cum laude

General honors are based on a minimum of 72 quarter hours of full-time attendance at FTU. The grade points used are those earned prior to the quarter preceding graduation. For students who have attended FTU only, their FTU grade point average is used, and for transfer students their overall grade point average is used.

DEANS' LIST

The Deans' List is recognition of scholastic honors for 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. These students are eligible for the Deans' List according to the following classifications:

- Summa cum laude list ................. 3.80 to 4.00 Qtr. GPA
- Magna cum laude list ................. 3.60 to 3.79 Qtr. GPA
- Cum laude list ......................... 3.40 to 3.59 Qtr. GPA

This list will be published by the colleges each quarter.
**REPEAT POLICY**

**FTU Courses.** A student who registers to repeat an FTU course within one year from the date of the original registration will have both grades recorded but only the last grade will be used in calculating the grade point average. If a student repeats an FTU course after one year has elapsed, both grades will be utilized in calculating the student’s grade point average.

**Transfer Courses.** If a transfer student takes an equivalent course at FTU which was previously completed at another institution, both grades will be utilized in calculating the student’s grade point average. However, if the repeat policy of the previous institution permits students to count only the last grade received in a repeated course, a transfer student may wish to repeat the course at the original institution. Under this procedure a revised official transcript must be provided by the previous institution.

**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. Approval of the student’s faculty adviser is necessary before any course change. (For Continuing Education courses “Add’s” will be accepted up to and including the second class meeting.)

**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 adviser 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

Students will be classified as “full-time”, based on the quarter-hour load for which they register each quarter, according to the following minimum schedule:

<table>
<thead>
<tr>
<th></th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee-assessing purposes</td>
<td>9 Qtr. Hrs.</td>
<td>9 Qtr. Hrs.</td>
</tr>
<tr>
<td>Selective Service</td>
<td>12 Qtr. Hrs.*</td>
<td>12 Qtr. Hrs.</td>
</tr>
</tbody>
</table>

*A student must complete one-fourth of his degree requirements annually.*
VETERAN'S BENEFITS

Full-Time Allowance
Students qualifying may receive full VA Benefit Allowance if registered the entire quarter for as many quarter hours as there are weeks during the quarter (inclusive of the registration and final examination days). Twelve (12) quarter hours will be counted as full-time even though there may be more than twelve (12) weeks in the quarter. In special cases where Graduate student registration varies from the above standards, full-time certification may be recommended by the Dean of Graduate Studies.

Three-Fourths Allowance
Three-fourths allowance will be allowed for nine (9) quarter hours during a regular quarter.

One-Half Allowance
One-half allowance will be allowed for six (6) quarter hours during a regular quarter.

Veterans in a Co-Op status can choose to draw VA Benefits for their 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 on 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.

PLEASE NOTE: Veterans must contact their local VA Office and obtain their Certificate of Eligibility which they must then furnish the FTU Registrar's Office in order to receive any due benefits.

Students registered for less than nine quarter hours in any one quarter will be considered “part-time” students.

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 above - Veteran's Benefits for Co-Op's.

SPECIAL STUDENT: A student of demonstrated academic ability who does not meet the regular requirements for admission.

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 registered at Florida Tech with the approval of some other university or college where he is regularly enrolled, or (2) a FTU student temporarily in attendance at another university or college, with the approval of FTU.

NON-DEGREE: A student earning credit, but not working on a degree program.
ACADEMIC STANDARDS FOR LEADERSHIP

To be eligible for any position of leadership or responsibility with any recognized student organization, publication or activity, a student must:

1) be enrolled for a minimum of 12 hours,
2) possess an FTU grade point average of at least 2.0 (C),
3) have received a minimum GPA of 2.0 for the preceding quarter,
4) be a degree-seeking student,
5) not be on academic warning, probation, or disciplinary probation.

An application for appeal due to an extenuating circumstance can be obtained from the Office of the Dean of Student Affairs.

ACADEMIC TERMS AND ACTIONS DEFINED

Quarter Average Grade Point Average on work attempted during any given quarter.

FTU Average Grade Point Average on all work attempted while in attendance at Florida Technological University.

Overall Average Grade Point Average on all work attempted since entering college, including work from all previously attended institutions.

Academic Warning First action taken when a student's FTU overall GPA drops below 2.0. An FTU

Academic Probation

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 student's overall and FTU GPA reaches 2.0 or better.

Disqualified

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 one quarter following disqualification. Readmission after the mandatory one quarter 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.

Exclusion

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 implies permanence and has no time limit.

Appeal

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.

**Readmission**

If a student has dropped out of the University for any reason, he must reapply on the appropriate form 28 days prior to the quarter he wishes to reenter.

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 while a Freshman or Sophomore and who subsequently receives an A.A. degree (with a 2.0 average on all college work attempted) from an accredited State of Florida junior college may be readmitted to the university with credit earned accepted in accordance with standard University policies.

In all other instances, during the quarter immediately following disqualification from Florida Technological University, a student should observe his suspension and may not earn credit toward a degree at FTU by taking credit in residence at another institution or through any extension or correspondence courses.

A student who attends other colleges or universities after the period of disqualification has elapsed 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.**

In order to withdraw from a course after the add-drop period, the student must have the approval of his faculty adviser and the instructor. Withdrawal forms may be obtained from and must be returned to the Registrar’s Office.

A “W” grade will be entered for a student who withdraws prior to the end of the fourth week of classes. A “W” will be entered for a student who withdraws while passing after the fourth week. An “F” will be entered for any student who withdraws while failing after the fourth week. A student who ceases to attend a class or the university without approval at any time prior to the reporting of final grades will receive a grade of “F” in the course or courses so dropped.

Students may not change from credit to audit after the fourth week unless passing in the course to be changed.

Students may not withdraw from a class or from the University or change from credit to audit during the last two weeks of any quarter.

These withdrawal policies 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.

In order that the student’s record at Florida Technological University may be complete at all times, a terminal interview with the Dean of the College and the Dean of Student Affairs must be arranged. Forms for Withdrawal In Good Standing may be obtained at the Registrar’s Office and must be returned to the Registrar. When signed by designated individuals, the student will be entitled to a status of good standing.
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.

**STEPS IN THE GRADUATION PROCESS**

**UNDERGRADUATE AND GRADUATE**

Students should apply to the Registrar for graduation before registering for their final quarter of attendance. Following completion of 150 undergraduate quarter hours of course work applicable toward an undergraduate degree, the student is notified by and should report to the Registrar’s Office and initiate the process of application for graduation. The last possible day to complete an Application for Graduation is the last day of the Add-Drop Period for the quarter in which the student expects to complete degree requirements.

1. The student must report to the Registrar’s Office and make formal application for graduation.

2. The candidate is sent to his adviser with the forms necessary to check the courses needed to determine graduation requirements. The form will be completed and forwarded to the Dean of the appropriate college for his approval.

3. Upon the completion of graduation requirements, the student's academic record will be checked by both the Dean of the College and the Registrar. If, for any reason, graduation requirements have not been met, the student will be notified immediately.

Successful completion of the degree requirements stated in the catalog under which the student has indicated he wishes to graduate shall constitute a recommendation of the respective college faculty that the degree be awarded, assuming the student is in good standing in the University.

All candidates certified to be eligible for a degree are expected to be present for graduation. In the event that circumstances or hardships prohibit attendance, permission to receive the degree in absentia may be obtained from the Registrar’s Office.

Candidates for graduation who anticipate enrolling in any graduate courses should register for, complete, and furnish satisfactory scores on the Graduate Record Examination (GRE), or the ATGSB for business majors, before they will be considered for admission. Contact the Developmental Center to complete this requirement.

**DOUBLE MAJORS (FTU STUDENTS)**

Any student satisfying all requirements for two majors shall be granted a single degree showing both majors.

**SECOND BACHELOR’S DEGREE (FTU STUDENTS)**

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.

Any Florida Technological University student desiring to obtain two baccalaureate degrees must meet the requirements for both degrees and earn a minimum of 225 quarter hours.

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

GENERAL INFORMATION

The Office of Graduate Studies is governed by a Dean who is assisted by a Coordinator for Graduate Affairs 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. Responsibility for the detailed operation of the various graduate degree programs is vested in the individual colleges.

For particulars concerning individual graduate programs, prospective applicants should refer to that section of this bulletin containing a detailed description.

GRADUATE PROGRAMS

Graduate study is presently available leading to the following degrees:

- Master of Arts in Communication
- Master of Business Administration
- Master of Science in Biological Sciences
- Master of Science in Computer Science
- Master of Education
- Master of Public Policy
- Master of Science (Engineering)
- Master of Science in Engineering
- Master of Science in Environmental Systems Management
- Master of Science in Community Psychology
- Master of Science in Industrial Psychology

Additional graduate study areas may be authorized in the future.

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 of all undergraduate and graduate work attempted. All transcripts must be received directly from the Registrar of the institution in which the work was attempted.

ADMISSION REQUIREMENTS

For consideration for regular admission to graduate study an applicant must have a Baccalaureate degree from an accredited institution and meet one of the following university minimum requirements:

1. Either a grade point average (GPA) of 3.0 (4.0 = A) for the last 90 quarter hours credited toward the Baccalaureate degree, or,

2. Quantitative-verbal GRE score of 1000 or higher. Applicants to the College of Business Administration must submit an ATGSB score of 450 or higher in lieu of the GRE.

Beyond these, the applicant must be accepted by the department or administrative unit offering the degree program to which the application is made. Any degree program retains the right to impose admission criteria above and beyond University minimums. While the general admission requirements described above apply generally
throughout the University, certain additional requirements may be established by the individual Colleges.

A student may occasionally be provisionally admitted with less than a 3.0 GPA upon recommendation of the Dean of the College to which he seeks admission. Conditions for advancement to regular status will be stipulated by the appropriate College Dean (or Deans) based on the recommendation of the student's major Department (or administrative unit) and subject to the approval of the Dean of Graduate Studies. Applicants will receive their notice of acceptance and registration appointment from the admissions office.

TRANSFER OF GRADUATE CREDIT

Normally, a maximum of nine quarter credits may be transferred to FTU for application to a Masters program. A greater number of credits as provided for by FTU Criteria for Master's Degree Graduate Programs may be transferred at the discretion of the Dean of the College upon a petition made by the student.

GRADUATE RECORD EXAMINATION REQUIREMENT

Certain graduate programs require applicants to submit scores on the Graduate Record Examination (GRE). Applicants should refer to the appropriate graduate program section for their particular requirements. Satisfactory scores on these examinations are determined by the College to which the application is made.

The GRE is given in October, December, January, February, April, and July, at numberous locations in the United States. To determine the exact dates and most convenient locations, students should write to the Educational Testing Service, Princeton, New Jersey 08540, or contact the FTU Developmental Center.

Students applying for admission to graduate study in Business Administration are required to submit scores on the Admission Test for Graduate Study in Business (ATGSB). This test is given in November, February, April, July, and August, at many locations in the United States. To determine exact dates and most convenient locations, students should write to the Educational Testing Service, Princeton, New Jersey 08450, or contact the FTU Developmental Center.

GENERAL REGULATIONS

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 adviser to keep him informed.

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 adviser 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.

STUDENT'S COMMITTEE

It is the intent that the student's committee be influential in designing a program for the student; that it should provide continual guidance; and that it should be the principal mechanism for evaluation of the student's progress.

This committee must have at least three (3) members. Members of the committee will be appointed by the Dean of the College in cooperation with the Department or appropriate unit in which the student is enrolled.

STUDENT'S PROGRAM

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 committee and should be approved by the appropriate College Dean. A copy of the program and names of the student's committee members will be filed with the Office of Graduate Studies prior to the start of the student's second quarter.

LOADS

The maximum graduate registration allowed in any quarter is 15 credits, although a minimum of 9 credits may constitute a full load. Students applying for assistance under Public Law 89-358 (Veterans' Readjustment Benefits Act of 1966) must register for 12 credits per quarter to qualify for certification as a full-time student.

COURSES AND CREDITS

Courses numbered 500-599 are primarily for beginning graduate students and those numbered 600-699 are for graduate students only. A maximum of 18 credits of dual level course work can be included in the students' graduate program.

GRADES AND SCHOLARSHIP

Acceptable grades for students pursuing graduate study are A and B. A cumulative grade point average (GPA) of 3.0, based on a minimum of the first 12 credits, shall be considered a satisfactory performance. A student whose GPA falls below this value will normally be dropped from the graduate program.
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)

BASIC PROGRAM (54)

Communications

Composition
ENG 101 Composition I (4)

Speech
SPE 101 Fundamentals of Oral Communication (3)

Literature
English 103, 208 or any other English writing course or Speech course. (3)

Cultural and Historical Foundations*
(Select one course from each group)

I. HUM 201 Western Humanities Survey (4)
II. PHIL Philosophy (4)
ENG 201, 317, 318, 320 or any other English Literature Course (3-4)
FL Any Literature course (3)

Mathematical Sciences
(Select any two)

COMP Any Computer Science course
PHI 205 Formal Logic I (4)
MATH Any Mathematics course
STAT Any Statistics course

Social Sciences*
(Select from both A & B)

I. ECON 201, 202, or 203 Economics (3, 3)
PCL 201 or 203 Political Science (4)
GEOG 350 or 360 Social Geography
II. PSY 201, 202 Psychology (3, 3)
SOC 201, 202 Sociology (3, 3)
SOC 310, 311 Anthropology (4, 4)
COM 100 Basic Communications (3)

Scientific Environment
(Select from at least two groups)

I. Biological Science (4-8)
Any BIOL, BOT, MICRO or ZOOL course.
II. Earth Sciences (4-8)
GEOL 100, 201, 202
GEOG 100 Physical Geography

* One year of a foreign language may be substituted for any 4 hours of Cultural and Historical Foundations and 4 hours of Social Sciences.

* One year of a foreign language may be substituted for any 4 hours of Cultural and Historical Foundations and 4 hours of Social Sciences.
III. Physical Sciences (4 - 8)
   Any PHYS courses
   Any CHEM courses
   ENGR 100, 151, 152

ADVANCED PROGRAM (15)

Business (3)
   BADM 301, 302, 371
   ECON 307

Engineering (3)
   ENGR 481 to 489

Education (3)
   EDEL 482 (3)
   EDTA 480 (3)
   EDTA 481 (3)

Electives (Upper Division) (6)
   These courses must be selected from a college other than the one in which the student is registered. A General Studies student may select electives from any college.

MAJOR IN GENERAL STUDIES

PURPOSE

The General Studies curriculum is a university-wide general purpose program leading 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 recognizes that, apart from the professional curricula, there are many combinations of courses which can be structured into meaningful programs to meet the needs of individual students.

The General Studies program has two main purposes:

1. It accommodates students who desire a liberal, non-professional education encompassing 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 should 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 select five of the following course areas and complete a minimum of 22 quarter hours in each group. These area groupings must be chosen from 4 or more colleges.** At least 55 quarter hours in the five areas must be from courses numbered 300 and above.

In addition to the university-wide degree requirements shown on page 38, a minimum 2.0 GPA must be presented in the 110 hour course area block.

COURSE AREA GROUPINGS

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

ALLIED HEALTH SCIENCES  N.S.**
Allied Health Sciences, Inhalation Therapy, Medical Record Administration, Medical Technology, Nursing and other Health Related Professions.
BEHAVIORAL SCIENCES  S.S.**
Anthropology, Psychology, Sociology, and Social Welfare.

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

BUSINESS ADMINISTRATION  B.A.**
Accounting, Business Administration, Economics,† Finance, Management, and Marketing.

COMMUNICATIONS  S.S.**
Journalism, Radio-Television, Speech and general courses in Communications.

EDUCATION  ED.**
Teaching Analysis, Human Development, Library Science and other related courses in Education.

ENGINEERING  ENGR.**
Selected courses from any departmental offerings in the college, related courses from the engineering core and interdisciplinary groupings. (ENGR 481-489).

FINE ARTS  HUM.**
Art, Creative and Professional Writing, Music, and Theatre.

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

LANGUAGES  HUM.**
English Language, Foreign Languages.

MATHEMATICAL SCIENCES  N.S.**
Computer Science, Mathematics, and Statistics.

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

SOCIAL SCIENCES  S.S.**
Criminal Justice, Economics,† Geography (Social), Political Science.

*These courses may not be used to satisfy any of the five course area requirements.

** The current six colleges are: Business Administration (B.A.); Education (ED.); Engineering (ENGR.); Humanities and Fine Arts (HUM.); Natural Sciences (N.S.); and Social Sciences (S.S).

† This course shown in two areas.
COLLEGE OF
BUSINESS ADMINISTRATION

ACCOUNTANCY
BUSINESS ADMINISTRATION
ECONOMICS
FINANCE
MANAGEMENT
MARKETING
PRE-LAW
QUANTITATIVE BUSINESS ANALYSIS
MASTER OF BUSINESS ADMINISTRATION
MASTER OF SCIENCE (Management)
COLLEGE OF BUSINESS
ADMINISTRATION

The purpose of education may be described as the maximum
development of one's potential for accomplishment as an
individual and as a responsible member of a dynamic society.
The goal of the College of Business Administration is an
extension of this purpose into the field of business.

The degree Bachelor of Science in Business Administration
with several majors is offered by the College of Business
Administration.

Graduates of the College of Business Administration may
pursue a wide variety of careers in business and industry, in
education, and in 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.

COURSE REQUIREMENTS FOR GRADUATION

<table>
<thead>
<tr>
<th>Areas</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Environmental Studies Program</td>
<td>69</td>
</tr>
<tr>
<td>Basic (54)</td>
<td></td>
</tr>
<tr>
<td>Advanced (15)</td>
<td></td>
</tr>
<tr>
<td>2. Business Core</td>
<td>50-54</td>
</tr>
<tr>
<td>3. Major Field of Concentration</td>
<td>26-40</td>
</tr>
<tr>
<td>Accountancy (33)</td>
<td></td>
</tr>
<tr>
<td>Business Administration (26-28)</td>
<td></td>
</tr>
<tr>
<td>Economics (29)</td>
<td></td>
</tr>
<tr>
<td>Finance (27)</td>
<td></td>
</tr>
<tr>
<td>Management (27)</td>
<td></td>
</tr>
<tr>
<td>Marketing (28-29)</td>
<td></td>
</tr>
<tr>
<td>Quantitative Business Analysis (36-40)</td>
<td></td>
</tr>
<tr>
<td>4. Electives (varies with major)</td>
<td>17-35</td>
</tr>
</tbody>
</table>

TOTAL QTR. HOURS REQUIRED 180

In addition to the 180 total hours required for graduation,
one must satisfy the following break-down of the 180 hours
to include:

90 hours at a senior institution
72 hours of 300-400 level courses
72 hours of course work offered by the College of Business
Administration
72 hours of course work taken outside the College of
Business Administration

ENVIRONMENTAL STUDIES PROGRAM (69)

The student in the College of Business Administration is
required to fulfill the general regulations for all
undergraduate degree students listed on page to satisfy
the Environmental Studies Program and include one of the
following: MATH 106, or MATH 320 in the mathematical
science sequence and statistics 301. In addition, a student
majoring in Marketing or Management must include PSY
201.

BUSINESS CORE (50-54)

The business core is designed to introduce the student to the
foundation courses in each of the major areas of business
administration. The business core provides a platform from
which the student builds his major course of study.

BADM 101 Business 4
ACCY 211, 212, or 307 Principles of Accountancy 8/5
ECON 201, 202
203 Principles of Economics 9
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 301</td>
<td>Professional Report Writing</td>
<td>3</td>
</tr>
<tr>
<td>FIN 301</td>
<td>Finance</td>
<td>5</td>
</tr>
<tr>
<td>MGMT 301</td>
<td>Management</td>
<td>5</td>
</tr>
<tr>
<td>MKTG 301</td>
<td>Marketing</td>
<td>5</td>
</tr>
<tr>
<td>ECON 321</td>
<td>Business and Economic Statistics</td>
<td>4</td>
</tr>
<tr>
<td>BADM 371</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>ECON 401</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>BADM 485</td>
<td>Business Policies</td>
<td>4</td>
</tr>
<tr>
<td>ECON 301</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>COMP 303</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>HUM 201</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective (PHIL, LIT, ART, HUM, MUS, REL, THA)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences</td>
<td></td>
<td>3 3 3</td>
</tr>
<tr>
<td>STAT 301</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>General Electives</td>
<td></td>
<td>4 4 5</td>
</tr>
</tbody>
</table>

**TOTAL QTR. HOURS REQUIRED**

90

**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 in the major.

**SUGGESTED PROGRAM FOR BUSINESS COLLEGE MAJORS** *(First Two Years)*

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101; SPE 101; ENG 103 or any ENG writing course</td>
<td></td>
<td>4 3 3</td>
</tr>
<tr>
<td>ECON 201, 202, 203</td>
<td></td>
<td>3 3 3</td>
</tr>
<tr>
<td>History (any course)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MATH 106, 320</td>
<td></td>
<td>4 4 4</td>
</tr>
<tr>
<td>Scientific Environment</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>General Elective</td>
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</table>

**TOTAL**

15 14 16

**SECOND YEAR**

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<tr>
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<tr>
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<td>HUM 201</td>
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<tr>
<td>STAT 301</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>General Electives</td>
<td></td>
<td>4 4 5</td>
</tr>
</tbody>
</table>

**TOTAL**

15 15 15

**MAJOR COURSE REQUIREMENTS**

**ACCOUNTANCY**

Faculty: Avery, Bldg. GCB 422, Phone 275-2710 Busch, Bussman, Cutcher, Johnson, Krebs, Wood.

Accountancy is usually selected as a major by the student who is preparing for private, governmental, or public accounting, or who wishes to use accountancy as general training for a career in business.

In private accounting, the accountant’s employment is limited to a single organization. The size and nature of the organization determines the scope of the accounting 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.

---

1 ECON majors will take ECON 301 in lieu of ECON 401.

2 Recommended

MATH courses below 106 will not satisfy the College of Business Administration's Math requirement. Placement in the mathematics is based upon the student's tested ability.
Governmental accounting deals with accounting principles, standards, and procedures applicable to state and local governments and to institutions for the purpose of expressing an opinion as to the fairness of the information presented. The public accountant may be called upon to render services to clients which transcend the expression of an opinion on financial statements. These services include the areas of management consulting and tax service.

The student who wishes to sit for the Certified Public Accountant’s Examination by selecting the one-year work-experience option should read Section 473.08, Florida Statutes, State Board of Accountancy.

Course requirements for a major in Accountancy are:

Required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
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<td>Intermediate Accounting</td>
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</tr>
<tr>
<td>ACCY 312</td>
<td>Intermediate Accounting</td>
<td>5</td>
</tr>
<tr>
<td>ACCY 321</td>
<td>Cost Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCY 433</td>
<td>Auditing</td>
<td>3</td>
</tr>
<tr>
<td>ACCY 451</td>
<td>Federal Income Tax Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCY 461</td>
<td>Computer Applications to Accounting Problems</td>
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Elective: (four courses)

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<th>Hours</th>
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<td>ACCY 341</td>
<td>Governmental Accounting</td>
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<td>ACCY 412</td>
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<tr>
<td>ACCY 413</td>
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<tr>
<td>ACCY 434</td>
<td>Auditing II</td>
<td>3</td>
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<tr>
<td>ACCY 452</td>
<td>Federal Income Tax Accounting</td>
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</tr>
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Not more than 36 hours of credit in Accountancy beyond the College business core requirement may be counted in the 180 quarter hours for graduation.

SUGGESTED PROGRAM FOR ACCOUNTANCY

THIRD YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>ACCY 311</td>
<td>Intermediate Accounting</td>
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<td>ACCY 312</td>
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<td>ACCY 321</td>
<td>Cost Accounting</td>
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<tr>
<td>ACCY 461</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BADM 371</td>
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<td></td>
<td>3</td>
</tr>
<tr>
<td>ECON 321</td>
<td></td>
<td></td>
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<tr>
<td>ENG 301</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
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<tr>
<td>FIN 301</td>
<td></td>
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<td></td>
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<tr>
<td>MGMT 301</td>
<td>Advanced Environmental Studies</td>
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<td>(ACCY 322 recommended)</td>
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TOTAL 15 15 14

FOURTH YEAR

<table>
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<tr>
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<th>Course Title</th>
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<tr>
<td>ACCY 433</td>
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<tr>
<td>ACCY 451</td>
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<tr>
<td>BADM 485</td>
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<td>ECON 401</td>
<td>(or ECON 301, 311, 341, 421, 431, 441, or FIN 331)</td>
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<td>MKTG 301</td>
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<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>(ACCY 411, 412 recommended)</td>
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<tr>
<td>Electives</td>
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</table>

TOTAL 14 16 16

TOTAL QTR. HOURS REQUIRED: 180

BUSINESS ADMINISTRATION

Faculty: Reidenbach, Bldg. GCB 412, Phone 275-2619
Gilliland, Hershey, Hitt, Mahaffey, T. Stone, Winchester.

Business Administration is normally selected as a major by those students who do not wish to concentrate in a specialized or functional field within the major disciplines offered by the College of Business Administration. Instead the student is encouraged to take advantage of the opportunity to select from any of the areas which interest
him, thereby making the program a highly flexible one which is also extremely broad in content.

The curriculum contains a large number of elective options which when coupled with the basic courses required of all students in the College, will give the student a breadth of understanding so as to enable him to take advantage of the multitude of opportunities found outside of a specialized field.

Course requirements for a major in Business Administration are:

**Required**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ACCY 321</td>
<td>Cost Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ECON 431</td>
<td>Public Finance in the American Economy</td>
<td>4</td>
</tr>
<tr>
<td>FIN 321, 331</td>
<td>Investments; Money and Banking; Financial Institutions</td>
<td>4</td>
</tr>
<tr>
<td>MGMT 401</td>
<td>Organization Theory</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 384</td>
<td>Marketing Research</td>
<td>5</td>
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</tbody>
</table>

**Electives**

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

**SUGGESTED PROGRAM FOR BUSINESS ADMINISTRATION**

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
<th>W</th>
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</thead>
<tbody>
<tr>
<td>ACCY 321</td>
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<td></td>
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<tr>
<td>BADM 371</td>
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</tr>
<tr>
<td>ECON 321</td>
<td>4</td>
<td></td>
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<td>ECON 431</td>
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<td>ENG 301</td>
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<tr>
<td>MGMT 301</td>
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<td>MGMT 401</td>
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<td>MKTG 301</td>
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</table>

**TOTAL** 15 14 16

**FOURTH YEAR**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BADM 485</td>
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<td>ECON 401 (or ECON 301, 311, 341, 421, 431, 441, or FIN 331)</td>
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<td>FIN 321, 331, or 411</td>
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<td>4</td>
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<td>MKTG 384</td>
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<td>Advanced Environmental Studies</td>
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<tr>
<td>Electives (Business)</td>
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**TOTAL QTR. HOURS REQUIRED: 180**

**ECONOMICS**

Faculty:  *Hicks Bldg. GCB 405, Phone 275-2656*

*David, Farah, Hufford, Klages, Raffa, Ramsey, Slemmer, Thompson, White*

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. Many important fields are covered in the study of economics, including economic theory, labor, international trade, economic history, agriculture, quantitative analysis, public utilities, economic systems, economic development, public finance, business and government, and urban economics.
One of the major goals of economics is the preparation of a student for intelligent citizenship. The economics courses required of all students in the College of Business Administration 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 policy. A major in economics prepares the student for a variety of careers in business, industry, and government.

Although all of the economics courses are administered and offered by the College of Business Administration, a student majoring in economics may earn either a Bachelor of Science in Business Administration degree in the College of Business Administration or a Bachelor of Arts degree in the College of Social Sciences. There are significant differences in these two degree programs. The Bachelor of Science in Business Administration degree student must complete the business core. The Bachelor of Arts degree requirements are listed in the College of Social Sciences section of this catalog.

Major course requirements for the Bachelor of Science in Business Administration degree with a major in Economics are:

**Required:**
- ECON 311  
  Intermediate Money, Income and Employment Theory  4
- ECON 431  
  Public Finance in the American Economy  3
- FIN 331  
  Money and Banking  4

Elective: (Six courses in economics not used elsewhere)
All economics majors will be required to take six electives beyond the major required economic courses of 311, 431, and FIN 331.

Concentration:
Economics majors may have a concentration in any economics area offering sufficient courses including quantitative courses.

Not more than 32 quarter hours of credit in Economics beyond the College of Business Administration's business core requirements may be counted in the 183 quarter hours required for graduation.

**SUGGESTED PROGRAM FOR ECONOMICS**

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>F</th>
<th>W</th>
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<td>ECON 311</td>
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<td>ECON 321</td>
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<tr>
<td>ECON 431</td>
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<td></td>
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<table>
<thead>
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<th>F</th>
<th>W</th>
<th>S</th>
</tr>
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<tbody>
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<td>BADM 485</td>
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**FINANCE**

Faculty:  
*Reiff* Bldg. GCB 404, Phone 275-2777  
*Budina, Millican*

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.

Business and corporation finance emphasizes the institutions and instruments through which short-term and long-term

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1. ECON 371 - PR: MATH 110 (Fall 3rd year); MATH 111 (Winter 3rd year); MATH 223/C: MATH 211 (Spring 3rd year).  
ECON 451 - PR: ECON 371; ECON 421
capital may be obtained and the management of funds in the individual firm.

The area of investments includes an analysis of the different types of outlets for investment funds, such as stocks and bonds, and an examination of the various factors involved in investment decisions and portfolio management.

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.

Course requirements for a major in Finance are:

**Required**
- FIN 321 Investments 4
- FIN 331 Money and Banking 4
- FIN 411 Financial Institutions 4
- FIN 431 Financial Management 4

**Electives:** (Two courses from group 1 and one from group 2)

**Group I**
- ECON 311 Intermediate Money, Income and Employment Theory 4
- FIN 311 Risk and Insurance 4
- FIN 341 Real Estate 4
- FIN 421 Security Analysis 4

**Group II**
- ACCY 321 Cost Accounting 3
- ECON 341 International Economics 3
- ECON 431 Public Finance 3

Not more than 32 quarter hours of credit in Finance beyond the college business core requirement may be counted in the 183 quarter hours required for graduation.

**SUGGESTED PROGRAM FOR FINANCE**

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
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<td>FIN 411</td>
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**TOTAL** 15 15 16

**FOURTH YEAR**

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<th>Course</th>
<th>F</th>
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<tbody>
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<td>BADM 485</td>
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</table>

**TOTAL** 14 16 15

**TOTAL QTR. HOURS REQUIRED** 180

**MAJOR FOR PRE-LAW STUDENTS**

Schools of Law admit graduates of accredited colleges, but most do not prescribe a standard program for the major in the undergraduate college. They generally suggest that applicants present a major in one of the following subject areas supported by electives from these same fields: accounting, economics, English, finance, history, literature, political science, sociology, and speech. Students who expect to enter a school of law should plan their program with the aid of the pre-law advisor.
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 management.

Organization theory focuses on the organization as a social system and the forces which affect this system, and includes behavior of individuals in groups, economic conditions and technology. Personnel management and industrial relations are concerned primarily with the effective utilization of human resources within the business organization.

The production manager specializes in the efficient utilization of the organization's material resources. The design and improvement of productive capacity and the coordination of the production process with other system activities are primary concerns.

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

Not more than 32 quarter hours of credit in Management beyond the college business core requirement may be counted in the 180 quarter hours required for graduation.

| SUGGESTED PROGRAM IN MANAGEMENT |
|-------------------------------|---|---|---|
| **THIRD YEAR**               | F | W | S |
| BADM 371                     |   | 3 |   |
| COM 311                      |   | 4 |   |
| ECON 321                     | 4 |   |   |
| ENG 301                      |   | 3 |   |
| FIN 301                      |   | 5 |   |
| MGMT 301                     | 5 |   |   |
| MGMT 324                     | 3 |   |   |
| MGMT 364                     |   | 4 |   |
| MGMT 424                     |   | 4 |   |
| MKTG 301                     |   | 5 |   |
| Advanced Environmental Studies| 3 | 3 |   |
| **TOTAL**                    | 15| 15| 16|

| **FOURTH YEAR**              | F | W | S |
| BADM 485                     |   | 4 |   |
| ECON 401 (or ECON 301, 311, 341, 421, 431, 441, or FIN 331) |   | 3 |   |
| MGMT 401                     | 4 |   |   |
| MGMT 465                     |   | 4 |   |
| MGMT 466                     | 4 |   |   |
| Advanced Environmental Studies| 3 | 3 | 3 |
| Electives (MGMT - two courses)| 4 | 4 |   |
| Electives                    | 4 | 4 |   |
| **TOTAL**                    | 15| 14| 15|

**TOTAL QTR. HOURS REQUIRED** 180

**MARKETING**

Faculty:  *Teeple, Bldg. GCB 416, Phone 275-2115*

*Bondurant, Fuller, Lederhaus, McAleer, Rubin, Troncalli*

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 career opportunities in the areas of advertising; sales promotion; sales management; industrial sales; purchasing; marketing research; product planning; physical distribution, and other related management positions. This type of career opportunity may be found in the manufacturing; transportation; communication; public utility; wholesale trade; retail trade; finance; insurance; real estate; construction; mining; agriculture; service or other industries. Opportunities are also available in education and government.

Course requirements for a major in Marketing are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required</strong></td>
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</tr>
<tr>
<td>MKTG 326 Consumer Market Behavior</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 367 Sales Management</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 384 Marketing Research</td>
<td>5</td>
</tr>
<tr>
<td>MKTG 485 Marketing Policies and Strategies</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electives: (Minimum of 3 courses with a maximum of one in PSY, COM area)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BADM 444 International Business Operations</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 334 Marketing Models and Logistics</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 364 Advertising Management</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 469 Channels of Distribution Management</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 489 Current Marketing Problems</td>
<td>4</td>
</tr>
<tr>
<td>PSY 300, 308, or COM 311</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Not more than 32 quarter hours of credit in Marketing beyond the college business core requirements may be counted in the 183 quarter hours required for graduation.

**SUGGESTED PROGRAM FOR MARKETING**

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>BADM 371</td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**QUANTITATIVE BUSINESS ANALYSIS**

Faculty: Gallaher, Newman,
Bldg. GCB 414, Phone 275-2840

The increased use of sophisticated tools of quantitative analysis in the business world requires additional emphasis in the quantitative area. The quantitative business analysis option provides an opportunity for the quantitatively able student to utilize his ability in the solution of business and economic problems through the use of mathematical tools. A good foundation in mathematics and statistics is required of students selecting this major.

There is a wide range of opportunities in business and industry, government, research, and education awaiting the student completing his major in quantitative business analysis.
Course requirements for a major in Quantitative Business Analysis are:

**Required:**
- COMP 304: Computer Fundamentals for Business Applications II 3
- MATH 320: Concepts of Calculus 4
- QBA 312: Quantitative Analysis I 4
- QBA 313: Quantitative Analysis II 4
- QBA 450: Business Simulation 4
- QBA 451: Quantitative Applications to Business Problems 4

**Electives:** (Choose 4; 4 hours must be in the College of Business Administration)
- MGMT 402: Decision Systems Analysis 4
- MGMT 403: Managing Decision Systems 4
- ACCY 321: Cost Accounting 3
- ACCY 322: Cost Accounting 3
- COMP 310: Business Data Processing Software Survey 3
- COMP 311: Analysis of Computer Systems and Hardware 3
- COMP 340: Data Structures and Operating Systems for Business 3
- COMP 487: Computer Processing of Business Data 3
- ECON 421: Economic Statistical Analysis 4
- FIN 431: Financial Management 4
- MGMT 402: Decision Systems Analysis 4
- MGMT 403: Managing Decision Systems 4

**ADMISSION REQUIREMENTS**

Admission is 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 Admission Test for Graduate Study in Business (ATGSB - 450 with a minimum of 23 on the verbal portion). Students who are deficient in one of these requirements may petition for special consideration. Such consideration will be based on 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 academic training in business is required, thus the two Master degree programs are open to graduates in education, engineering, liberal arts, science, and other fields as well as business.

The applicant will not be considered for regular graduate status until his score on the Admission Test for Graduate Study in Business, 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 Admission Test for Graduate Study in Business (ATGSB) and to direct the Educational Testing Service to mail the test score to the Director of Admissions, Florida Technological University. The ATGSB test is administered at locations throughout the United States and in foreign test centers in February, April, June, August, and November. Applications and information for the test may be obtained from the Educational Testing Service, Box 966, Princeton, New Jersey, 08540. Completed
applications for the test must be returned to the Educational Testing Service at least three weeks in advance of each scheduled test date.

FOREIGN 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 ATGSB. The TOEFL and ATGSB 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.

PERSONAL INTERVIEW AND ENROLLMENT

A personal interview with the Coordinator of the graduate program, in connection with the application for admission is desirable. Personal interviews may be arranged through the Office of the Dean.

Enrollment in graduate courses is limited to students who have been accepted in one of the admission categories for the MBA and MSM programs. Students who apply too late to take the Admission Test for Graduate Study in Business may be required to register for prerequisite undergraduate courses only. An exception may be made for a student ranking in the upper 10% of his undergraduate class. The College of Business Administration office must have the student’s application for admission on file prior to the registration for the prerequisite courses.

RESIDENCE REQUIREMENTS

For the purpose of assessing tuition, a Florida student is considered to be an applicant who has been a resident in the State of Florida for at least 12 months immediately preceding his registration.

FULL-TIME / PART-TIME ENROLLMENT

The MBA and MSM degrees may be earned by employed students through enrollment in evening classes. Those students who take no more than eight quarter hours of credit per quarter, whether prerequisite (undergraduate or foundation) or graduate courses, are considered part-time. Students who need most of the prerequisite courses will normally require the equivalent of two academic years of full-time study in order to complete the requirements for the MBA or MSM degree. The time required to complete the requirements for the degree will be determined on an individual basis.

TRANSFER GRADUATE CREDIT

A maximum of nine quarter hours (18 quarter hours from Universities within the State University System of Florida) of graduate credits beyond the preparatory requirements may be transferred from another accredited institution, if taken within the last five years. The student should request the transfer of credits promptly after being admitted to the graduate program and prior to registration as this information will be considered in his course planning.

SCHOLASTIC REQUIREMENTS

An overall “B” average is required in all graduate work. Individuals earning in excess of nine hours of “C” will immediately have their status changed to Post-Baccalaureate and thus be excluded from graduate studies. When a student’s cumulative GPA for 12 or more hours of graduate credit falls below 3.0 his status will automatically be changed to Provisional as this constitutes unsatisfactory performance.
The student's program must be completed within five years of enrollment in the first graduate class beyond the foundation program.

MASTER OF BUSINESS ADMINISTRATION

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 approach to the resolution of business problems.

PROGRAM OF STUDY

Prerequisites for Graduate Program. The following prerequisites should be completed before a student may enroll in required/elective graduate courses:

Prerequisite Undergraduate Courses / Equivalent Foundation Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCY 211, 212</td>
<td>Basic Concepts</td>
</tr>
<tr>
<td>ACCY 307</td>
<td>Accounting Concepts</td>
</tr>
<tr>
<td>ACCY 501</td>
<td>Financial Accounting Concepts</td>
</tr>
<tr>
<td>BADM 371</td>
<td>Business Law</td>
</tr>
<tr>
<td>BADM 501</td>
<td>Business Environment and Business Law</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>ECON 203</td>
<td>Introduction to Aggregate Economics</td>
</tr>
<tr>
<td>ECON 501</td>
<td>Economic Concepts</td>
</tr>
<tr>
<td>STAT 301</td>
<td>Fundamentals of Probability and Statistics,</td>
</tr>
<tr>
<td></td>
<td>or Calculus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 321</td>
<td>Business and Economic Statistics</td>
</tr>
<tr>
<td>or ECON 521</td>
<td>Statistics for Business and Economics</td>
</tr>
<tr>
<td>FIN 301</td>
<td>Finance</td>
</tr>
<tr>
<td>or FIN 501</td>
<td>Financial Concepts</td>
</tr>
<tr>
<td>MGMT 301</td>
<td>Management</td>
</tr>
<tr>
<td>or MGMT 501</td>
<td>Management and Production Concepts</td>
</tr>
<tr>
<td>MKTG 301</td>
<td>Marketing</td>
</tr>
<tr>
<td>or MKTG 501</td>
<td>Marketing Concepts</td>
</tr>
</tbody>
</table>

Students completing their last prerequisite course(s) may register for graduate courses in the same quarter with the permission of the Coordinator of the graduate program.

Prerequisite courses must have been completed with a minimum grade of "B" 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.

Course Requirements: In addition to the prerequisites listed above, a minimum of 45 quarter hours of graduate study is required for the Master of Business Administration degree. The required graduate courses for the MBA program are as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required:</td>
<td>Accounting Analysis</td>
</tr>
<tr>
<td>ACCY 601</td>
<td>3</td>
</tr>
<tr>
<td>BADM 601</td>
<td>Operations Research Models for Business</td>
</tr>
<tr>
<td>BADM 611</td>
<td>3</td>
</tr>
<tr>
<td>BADM 621</td>
<td>Systems Analysis for Business Problem Solving</td>
</tr>
<tr>
<td>BADM 695</td>
<td>3</td>
</tr>
<tr>
<td>ECON 601</td>
<td>Business Policy</td>
</tr>
<tr>
<td>ECON 621</td>
<td>3</td>
</tr>
<tr>
<td>FIN 601</td>
<td>Research Methods</td>
</tr>
<tr>
<td>FIN 611</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 601</td>
<td>Economic Analysis of the Firm</td>
</tr>
<tr>
<td>MGMT 611</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 601</td>
<td>Statistical Models for Business</td>
</tr>
<tr>
<td>TOTAL</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Marketing Analysis</td>
</tr>
</tbody>
</table>
Elective Credit: Each student in the MBA program will complete at least nine hours of approved electives from 600 level courses. Students may make selections from any 600 level offerings in the College of Business Administration, or, by petition, certain graduate courses which may be open to them in other colleges and are approved by the Graduate Study Committee of the College of Business Administration. A graduate elective course may be substituted for one graduate required course in the student’s major for the student with a baccalaureate degree in Business Administration completed within the previous five years.

Research Project: No thesis is required for the MBA degree. A student may petition to accomplish an independent study for three hours of elective graduate credit (BADM 694) or a major research project and written report for six hours of elective graduate credit (BADM 697-698). The research project will include the statement, exposition and resolution of a hypothesis in an area of Business Administration by means of a critical and analytical review of existing literature or through primary research.

Comprehensive Examination: Satisfactory completion of a written comprehensive examination is required for the MBA degree. The two hour comprehensive examination on the major areas of study normally will be taken during the eighth week of the final quarter of required course work.

PROGRAM OF STUDY

Prerequisites for Graduate Program: Same as for the MBA program.

Course Requirements: In addition to the prerequisites, a minimum of 45 quarter hours of graduate study is required for the Master of Science in management degree. Required graduate courses for the MSm program are identical to the 36 hours of required course work for the MBA program.

Thesis: Specialization for the Master of Science in management will be achieved through the research required in an area of management to prepare a satisfactory thesis.

Nine hours of credit (MGMT 699) are granted for the thesis. Each student will be expected to defend his thesis.

GENERAL INFORMATION

Additional information pertaining to graduate programs is available in the graduate section of this bulletin (See pages 62 - 64).

MASTER OF SCIENCE IN MANAGEMENT

The purposes of the Master of Science in management degree are to provide students with a broad understanding of business administration and the experience and knowledge gained from the in-depth research in one area of management provided by the thesis requirement. The Master of Science in management is of particular interest to those students who wish to pursue the doctorate in business.
COLLEGE OF EDUCATION

ELEMENTARY
SECONDARY
  BIOLOGY
  BUSINESS EDUCATION
  CHEMISTRY
  ENGLISH LANGUAGE ARTS
  FOREIGN LANGUAGE
  MATHEMATICS
  PHYSICS
  SOCIAL SCIENCES
  SPEECH

COMPREHENSIVE (K-12)
  LIBRARY MEDIA
  MUSIC EDUCATION
  PHYSICAL EDUCATION
  VISUAL ARTS

ADVANCED STUDIES
The College of Education is organized as a professional college within the University. Each student who is planning a career in teaching in the elementary or secondary schools should enroll in this College.

The academic program is primarily concerned with three broad areas: Environmental Studies, Specialized Preparation and Professional Preparation. All of these areas are interrelated and interdependent.

The Environmental Studies requirements are designed to provide a broad foundation for each individual. These courses are offered by each of the colleges.

In general, specialized preparation in subject matter areas for secondary education majors is offered by the University's other colleges, while specialized elementary education content courses are offered by the College of Education. All programs are developed in cooperation with the other colleges within the University.

The professional sequence is the responsibility of the College of Education and is designed to:

A. Give insights into the processes of school curriculum and organization.

B. Present an opportunity for the student to understand how learning takes place, as well as furnish him with methods and procedures needed for successful teaching.

C. Develop an understanding of the society in which the school functions.

D. Build an awareness in the individual of his relationship with students and the community.

E. Provide significant prestudent teaching experiences and a culminating student-teaching experience near the end of his program.

F. Stimulate each individual toward the realization of the challenges and responsibilities in the field of education and begin the development of 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. The laboratory experiences are 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 students of the College of Education.

The College of Education plans cooperatively with Student Affairs in the development of an effective intramural program. It also provides the physical education courses that may be applied in the Environmental Studies program.

Program design will continue to change as evaluation and research determine the advisability of change in reference to the student’s personal and academic needs.

Programs are offered leading to the Bachelor of Arts degree and the Master of Education degree in Education.

BACHELOR OF ARTS DEGREE PROGRAM

The Career Teacher Programs are designed to lead to the Bachelor of Arts degree. 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 the first quarter in which they enroll.
A minimum of 180 quarter hours is required for graduation. Requirements, however, vary according to the selected teaching major as follows:

**AREAS**

<table>
<thead>
<tr>
<th>Program</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Studies Program</td>
<td>69</td>
</tr>
<tr>
<td>Basic (54)*</td>
<td></td>
</tr>
<tr>
<td>Advanced (15)</td>
<td></td>
</tr>
<tr>
<td>Academic Specialization</td>
<td>41-76</td>
</tr>
<tr>
<td>Professional Preparation</td>
<td>38-44</td>
</tr>
<tr>
<td>Phase I. Teaching Analysis and Human Development</td>
<td></td>
</tr>
<tr>
<td>Phase II. Developmental – Elementary Development</td>
<td></td>
</tr>
<tr>
<td>Phase III. Teaching Strategies</td>
<td></td>
</tr>
<tr>
<td>Student Teaching</td>
<td></td>
</tr>
<tr>
<td>Electives (varies with major)</td>
<td>7-33</td>
</tr>
</tbody>
</table>

**CERTIFICATION FOR TEACHING**

**UNDERGRADUATE CERTIFICATION**

All College of Education curricula are designed to fulfill the State of Florida certification requirements. Upon application to the State Department of Education a graduate may be issued a Rank III Florida Teaching Certificate. In addition, there is an "Interstate" agreement with several states for those College of Education graduates who desire to teach outside of Florida. Check with the Dean, College of Education or Florida Department of Education for information.

**UNDERGRADUATE CAREER TEACHER PROGRAM**

The Career Teacher Program consists of three distinct Phases:

*Student must complete a minimum of nine (9) quarter hours of English composition, rhetoric or grammar.

**PHASE I – TEACHING ANALYSIS**

This phase is required of all education majors and designed to acquaint the student with basic teaching procedures, pre-instructional planning, phases of performance evaluation, and the developmental-behavioral characteristics of children. Various aspects of the teaching profession are analyzed. Experiences will provide the student a basis for deciding whether or not to pursue teaching as a career. Any university student in good standing who qualifies for sophomore courses may enroll in Phase I.

**PHASE II – DEVELOPMENTAL**

Developmental activities are structured to provide the prospective teacher opportunities to develop specific teaching skills and to expand his teaching field knowledge. Included are analysis of evaluation practices, school curricula, learning theory, special instructional techniques, and variables which affect classroom environment. Laboratory experiences in Phase II are jointly planned by public school personnel and university faculty. These student-teaching experiences will occur in Teacher Education Centers which are selected public elementary or secondary schools. To be admitted to Phase II a student must have an overall 2.0 academic average, have successfully completed Phase I requirements, and must demonstrate 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 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 no later than October 1 for the Winter Quarter; January 15 for the Spring Quarter; and April 5 for the Fall Quarter.

ELEMENTARY EDUCATION

Chairman: Martin, Bldg. GC 317, Phone 275-2161
Faculty: Anderson, Bird, Bunnell, Cox, Esler, F. Green, Harlacher, Haughee, Hynes, Merritt, Madgett, Palmer, Poe, Thompson.

The Elementary Education Program is planned for students interested in the development and education of children six to twelve years of age. Students majoring in elementary education are certified to teach grades one through six upon graduation and receipt of a state teacher's certificate. Areas of study required are: (1) Environmental Studies (69 quarter hours); (2) Academic Specialization (41 quarter hours); (3) Professional Preparation (38 quarter hours); (4) Related Field of Academic Concentration (12 q.h. minimum); and (5) Electives (21 quarter hours).

ACADEMIC SPECIALIZATION COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEL 301</td>
<td>Teaching Mathematics in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 302</td>
<td>Mathematics Programs in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 306</td>
<td>Music in Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 307</td>
<td>Literature for Children</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 312</td>
<td>Reading in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 315</td>
<td>Teaching Science in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 317</td>
<td>Teaching Social Sciences in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 405</td>
<td>Language Arts in the Elementary School</td>
<td>5</td>
</tr>
<tr>
<td>EDEL 406</td>
<td>Art in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 407</td>
<td>Classroom Diagnosis and Treatment of Reading Difficulties</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 408</td>
<td>Science Programs in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 409</td>
<td>Social Science Programs in the Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 415</td>
<td>Teaching Elementary School Health and Physical Education</td>
<td>3</td>
</tr>
</tbody>
</table>

EDEL 482 Drug Abuse Education 3
TOTAL 44

PROFESSIONAL PREPARATION COURSES

<table>
<thead>
<tr>
<th>Phase I – Analysis</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTA 206 Human Development</td>
<td>3</td>
</tr>
<tr>
<td>EDTA 307 Teaching Analysis</td>
<td>5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase II – Development</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEL 311 Basic Foundations of Reading</td>
<td>3</td>
</tr>
<tr>
<td>EDPL 320,321 Student Teaching</td>
<td>6</td>
</tr>
<tr>
<td>EDTA 305 Principles of Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>EDTA 306 Learning Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase III – Application</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEL 316 Elementary School Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDPL 421 Student Teaching</td>
<td>9</td>
</tr>
<tr>
<td>EDPL 408 Teaching Strategies</td>
<td>3</td>
</tr>
</tbody>
</table>
TOTAL 38

TEACHING LABORATORY EXPERIENCE

Practical laboratory experiences in elementary schools identified as Teacher Education Centers will be scheduled for elementary education majors during two quarters of the junior year (Phase II). Daily participation at a Center is required for approximately one-half day, usually in the morning, with a prescribed sequence of campus courses scheduled concurrently for the other one-half day, usually in the afternoon.

Practical experience also occurs in the senior year (Phase III). The student is assigned full-time for one quarter in a Center under the direction of a selected teacher.

RELATED FIELD OF ACADEMIC CONCENTRATION

A minimum of 12 quarter hours is required in a related field of academic concentration such as the following: art, communication, early childhood education, exceptional child education, English, French, Spanish, humanities, library
science, mathematics, music, physical education, sciences, or social sciences.

EARLY CHILDHOOD EDUCATION
(Nursery and Kindergarten)

In addition to certification in grades one through six, requirements may be met for certification in early childhood education. Minimum requirements are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEL 401</td>
<td>Programs in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 402</td>
<td>Language Arts in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 404</td>
<td>Organization of Instruction in Nursery —</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Kindergarten Education</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td>9</td>
</tr>
</tbody>
</table>

SUGGESTED PROGRAM FOR ELEMENTARY EDUCATION

FIRST YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101, SPE 101, ENG 103</td>
<td>Communications</td>
<td>4</td>
</tr>
<tr>
<td>HUM 201, HIST 201 or 311</td>
<td>Cultural and Historical Foundations</td>
<td>4</td>
</tr>
<tr>
<td>Math 101</td>
<td>Math Sciences</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 301, 302, 303</td>
<td>Scientific Environment</td>
<td>3</td>
</tr>
<tr>
<td>PSY 201</td>
<td>Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td>Math 201</td>
<td>Elective</td>
<td>4</td>
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<tr>
<td></td>
<td>Academic Concentration Area</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td>15</td>
</tr>
</tbody>
</table>

SECOND YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT, COMP or PHI</td>
<td>Math Sciences</td>
<td>4</td>
</tr>
<tr>
<td>SOC 201, GEOG, PCL 201</td>
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FOURTH YEAR

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SECONDARY EDUCATION

Chairman: Hall, Bldg. GC 333 Phone 275-2286
Faculty: Armstrong, Baab, Brumbaugh, Clarke, Fowler, Gurney, Mendiville, E. Miller, Olson, Siebert, Snellings, Weidenheimer, West, A. L. Wood.

The Secondary Education specializations are designed to help students develop the competencies needed to teach in the

---

1. Scheduled Fall Quarter for A.A. degree transfer students.
2. May be scheduled Winter or Spring Quarter.
3. May be scheduled Fall or Spring Quarter.
4. May be scheduled Fall or Winter Quarter.
various academic areas found in schools. Although primarily focused on the development and education of adolescents, there are specializations which include teacher preparation in the full range of kindergarten through senior high school, namely: Library Media, Music and Visual Arts. Other specializations available include: Biology, Business Education, Chemistry, English Language Arts, French, Mathematics, Physics, Social Sciences, Spanish, and Speech. Students completing these programs will be eligible for teacher certification in the specialization completed, grades seven through twelve. The courses necessary for Vocational/Technical certification are also available, but no degree program is offered.

Each specialization contains four areas of study: (1) Environmental Studies (69 quarter hours), (2) Professional Preparation (38-44 quarter hours), (3) Specialization (50-76 quarter hours), and (4) Elective hours which vary according to the specialization.

ENVIRONMENTAL STUDIES

General education is provided in the Environmental Studies and requirements must be met by each student in Secondary Education. The program is explained at the beginning of the Academic Programs section.

PROFESSIONAL PREPARATION

In the undergraduate Career Teacher Program, Secondary Education majors are encouraged to follow the three phases (I, II, III) as designed. Phase I should be completed at the end of the sophomore year or, in the case of junior college transfers, during the first quarter of enrollment. Phase II is designed to be taken as a block of courses and should be completed early in the junior year. Since the second phase closely simulates a teacher's working week, it provides students the opportunity to carefully evaluate their chosen profession at a relatively early date in college. Phase III should be completed late in the senior year and is only practical taken in the prescribed 15 quarter-hour block. Students are encouraged to clear their working and class schedules during Phase II and III to allow them to devote full-time to Student Teaching.

PROFESSIONAL PREPARATION COURSES

Phase I — Analysis
EDTA 206  Human Development  3
EDTA 307  Teaching Analysis  5

Phase II — Developmental
EDSE 303  School Program
or
EDSE 305  Secondary School Curriculum  3
EDSE 310-380  Instructional Analysis  4-7
EDTA 305  Principles of Evaluation  3
EDTA 306  Learning Theory  3
EDPL 330  Student Teaching  3
EDPL 321  Student Teaching  3

Phase III — Application
EDPL 430  Student Teaching  9
EDPL 408  Teaching Strategies  3
EDSE 404  Instructional Techniques  3
TOTAL  38-44

TECHNICAL- VOCATIONAL EDUCATION

The State of Florida requires that at least thirty (30) quarter hours of professional education be earned for Standard Rank III Certification in Technical-Vocational Education. The thirty hours must include twenty-one (21) quarter hours in professional vocational teacher education courses and a minimum of five (5) quarter hours in general professional education.

1. For K-12 certification only.
REQUIRED COURSES (32 Q.H.)

Area A — Foundations
EDVE 401 Philosophy and Principles of Technical-Vocational Education 4

Area B — Techniques
EDVE 402 Methods of Teaching Technical-Vocational Subjects 4
EDVE 422 Evaluation of Occupational Instruction 4
EDVE 423 Analysis of Learning as Applied to Vocational Education 4

Area C — Special Methods
EDVE 411 Analysis of Vocational Occupations 4
EDVE 421 Curriculum Planning for Vocational Education 4

Area D — General Professional Education
EDTA 206 Human Development 3
EDTA 307 Teaching Analysis 5

SPECIALIZATION AREAS

BIOLOGY SPECIALIZATION (Grades 7-12)

REQUIRED COURSES (57 Q.H.)
BIOL 100 General Biology 4
BIOL 350 Principles of Ecology 4
BIOL 360 Genetics 4
BOT 100 General Botany 4
CHEM 111, 112, 113, General Chemistry (5, 3, 3) 11
CHEM 115, 264 Chemistry Laboratory (1, 1) 2
MICR 200 General Microbiology 4
ZOOL 100 General Zoology 4
ZOOL 324 Human Anatomy 5
EDSE 461 Biology Laboratory Teaching 3

GENERAL BIOLOGY ELECTIVES (300-400 level) 12

ELECTIVES 33

Certification in General Science may also be attained by completing PHYS 103, Astronomy or GEOL 100, 101, Physical Geology, in addition to the requirements in biology specialization.

SUGGESTED PROGRAM IN BIOLOGY EDUCATION

FIRST YEAR
Biolog (BIOL 100, BOT 100, ZOOL 100) 4 4 4
Communications (SPE 101, ENG 101, ENG 103) 3 4 3
Cultural and Historical Foundations (Area A, C) 4 4
Social Science (PSY 201, 202) 3 3
Elective 3
TOTAL 14 15 14

SECOND YEAR
Biolog (MICR 200, ZOOL 324) 4 5
Chemistry (CHEM 111, 112, 113, 115, 264) 5 4 4
Mathematical Sciences (STAT 201) 4
Professional Education (EDTA 206, 307) 9
Social Sciences (Area A) 3 4
Electives 3 2
TOTAL 16 16 15

THIRD YEAR
Advanced Environmental (BUS, ENGR, ED) 3 6
Biolog (BIOL 350, 360) 4 4
Cultural and Historical Foundations (Area B) 4
Professional Education — Jr. Block 16 3 5
Electives 16 14 15
TOTAL 16 15 15

FOURTH YEAR
Biolog Electives (300-400 level) 8 4
Professional Education — Student Teaching 15
Secondary Education (EDSE 461) 3
Electives 7 8
TOTAL 15 15 15
BUSINESS EDUCATION SPECIALIZATION (Grades 7 - 12)

Two programs are available to students. The comprehensive curriculum covers all areas of business, but has emphasis on secretarial practices while the Basic Business and Accounting curriculum stresses general business practices and excludes shorthand instruction.

**COMPREHENSIVE CURRICULUM**

**REQUIRED COURSES**

- ACCY 111, 112: Basic Concepts (4, 4)
- BADM 371: Business Law
- ECON 203: Introduction to Aggregate Economics
- EDBE 101: Introductory Typewriting
- EDBE 102, 103: Typewriting Production I, II
- EDBE 201, 202: Principles of Shorthand I, II, III
- EDBE 301: Shorthand Dictation
- EDBE 302: Shorthand Transcription
- EDBE 305: Office Technology
- EDVE 401: Philosophy & Principles of Technical-Vocational Education
- EDVE 406: Office Systems and Procedures
- ENG 301: Professional Report Writing
- ELECTIVES

**TOTAL Q.H.** 51

**BASIC BUSINESS AND ACCOUNTING CURRICULUM**

**REQUIRED COURSES**

- ACCY 111, 112: Basic Concepts (4, 4)
- ACCY 311, 312: Intermediate Accounting (4, 5)
- BADM 371: Business Law
- ECON 203: Introduction to Aggregate Economics
- ECON 411: Comparative Economic Systems
- EDBE 101: Introductory Typewriting
- EDBE 102, 103: Typewriting Production I, II
- EDBE 305: Office Technology
- EDVE 401: Philosophy & Principles of Technical-Vocational Education
- ENG 301: Professional Report Writing
- MKTG 301: Marketing
- ELECTIVES

**TOTAL Q.H.** 55

**SUGGESTED PROGRAM FOR BUSINESS EDUCATION – COMPREHENSIVE SPECIALIZATION**

**FIRST YEAR**

- Accountancy (ACCY 111, 112)
- Business Education (EDBE 101-103)
- Communications (ENG 101, 103; SPE 101)
- Electives

**TOTAL Q.H.** 15

**SECOND YEAR**

- Business Education (EDBE 201, 202, 203)
- Economics (ECON 201, 202, 203)
- Mathematical Sciences (MATH, STAT 201)
- Professional Education (EDTA 206, 307)
- Social Sciences (PSY 201, 202)
- Electives

**TOTAL Q.H.** 16

**THIRD YEAR**

- Business Education (EDBE 301, 302, 305)
- Cultural and Historical Foundations (Areas A, B, or C)
- English (ENG 301)
- Professional Education – Jr. Block
- Secondary Education (EDSE 431, 432)
- Electives

**TOTAL Q.H.** 16

**FOURTH YEAR**

- Advanced Environmental (ENGR, ED)
- Business Education (EDVE 401, EDBE 406)
- Business Law (BADM 371)
- Business Electives (300-400 level)
- Professional Education – Student Teaching
- Electives

**TOTAL Q.H.** 14

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1. ECON 201, 202 are prerequisites.
2. May be exempted, but Business Administration courses must be selected as replacements for courses exempted.
SUGGESTED PROGRAM FOR BUSINESS EDUCATION – BASIC BUSINESS AND ACCOUNTING SPECIALIZATION

**FIRST YEAR**

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**SECOND YEAR**

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CHEMISTRY SPECIALIZATION (Grades 7 - 12)

**REQUIRED COURSES**

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<th>Requirement</th>
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<td>CHEM 261, 262, 263</td>
<td>Chemistry Fundamentals (4, 3, 3) (10 Q.H.)</td>
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<td>CHEM 264</td>
<td>Chemistry Fundamentals Laboratory (1 Q.H.)</td>
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<td>CHEM 321, 322, 323</td>
<td>Organic Chemistry (4, 3, 3) (10 Q.H.)</td>
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<td>CHEM 324</td>
<td>Organic Laboratory Techniques (2 Q.H.)</td>
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<td>CHEM 351, 352</td>
<td>Analytical Chemistry (3, 3) (6 Q.H.)</td>
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<td>EDSE 462, 463</td>
<td>Chemistry Laboratory Teaching (2, 2) (4 Q.H.)</td>
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<tr>
<td>CHEM 300-400</td>
<td>Electives (Credit must be earned in Biochemistry) (7 Q.H.)</td>
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**MATHEMATICS REQUIREMENTS (23)**

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<td>Precalculus Mathematics (4, 4) (8 Q.H.)</td>
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<td>MATH 211</td>
<td>Analytic Geometry (3 Q.H.)</td>
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<td>Calculus (4, 4) (12 Q.H.)</td>
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Certification in Mathematics may also be completed by taking a total of 32 quarter hours in Mathematics including the requirements for Chemistry.

SUGGESTED PROGRAM FOR CHEMISTRY EDUCATION

**FIRST YEAR**

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**SECOND YEAR**

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**THIRD YEAR**

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FOURTH YEAR

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ENGLISH LANGUAGE ARTS SPECIALIZATION
(Grades 7 - 12)

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<td>ENG 211-213, 314</td>
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<td>ENG 311-313</td>
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<td>History and Development of Language</td>
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<td>SPE 371</td>
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<td>ELECTIVES</td>
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Certification in Speech may be completed by taking THA 180 — Study of Drama and Theatre or THA 230 — Interpretation I (3); SPE 261 — English Phonetics and American Dialects (5); and SPE 360 — Argumentation and Debate (4) including the requirements for English.

SUGGESTED PROGRAM FOR ENGLISH LANGUAGE ARTS SPECIALIZATION

<table>
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<td>Mathematical Sciences (MATH, STAT 201)</td>
<td>4 4</td>
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<tr>
<td>Professional Education (EDTA 206, 307)</td>
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<tr>
<td>Social Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Electives (ENG 371 recommended)</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>15 16 14</td>
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<table>
<thead>
<tr>
<th>THIRD YEAR</th>
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<tbody>
<tr>
<td>Advanced Program</td>
<td>3 6</td>
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<tr>
<td>English (ENG 311, 312, 313, 415)</td>
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<tr>
<td>Professional Education — Jr. Block</td>
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<tr>
<td>Secondary Education (EDSE 442)</td>
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<tr>
<td>Speech (SPE 371)</td>
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<tr>
<td>Electives</td>
<td>3 3</td>
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<td><strong>TOTAL</strong></td>
<td>16 15 16</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>English (ENG 451, 471, 473)</td>
<td>6 3</td>
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<tr>
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<tr>
<td>Secondary Education (ESDE 440, 441)</td>
<td>3 3</td>
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<td>Electives</td>
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<td><strong>TOTAL</strong></td>
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</table>
FOREIGN LANGUAGE SPECIALIZATION — FRENCH (Grades 7 - 12)

REQUIRED COURSES (58 Q.H.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>FRE 101, 102, 103 Elementary French Language and Civilization (3, 3, 3)¹</td>
<td>9</td>
</tr>
<tr>
<td>FRE 201, 202, 203 Intermediate French Language and Civilization (3, 3, 3)¹</td>
<td>9</td>
</tr>
<tr>
<td>FRE 301 French Composition</td>
<td>4</td>
</tr>
<tr>
<td>FRE 303 French Conversation</td>
<td>4</td>
</tr>
<tr>
<td>FRE 311, 312, 313 Survey of French Literature (3, 3, 3)</td>
<td>9</td>
</tr>
<tr>
<td>FRE 401 French Phonetics and Diction</td>
<td>2</td>
</tr>
<tr>
<td>FRE 300, 400 French Electives</td>
<td>18</td>
</tr>
<tr>
<td>EDSE 320 Language as Human Behavior</td>
<td>3</td>
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<tr>
<td>ELECTIVES</td>
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Certification in a second language may be completed by taking 27 quarter hours in that language including the requirements for French.

FOREIGN LANGUAGE SPECIALIZATION — SPANISH (Grades 7 - 12)

REQUIRED COURSES (58 Q.H.)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>SPA 101, 102, 103 Elementary Spanish Language and Civilization (3, 3, 3)¹</td>
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<tr>
<td>SPA 201, 202, 203 Intermediate Spanish Language and Civilization (3, 3, 3)¹</td>
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<tr>
<td>SPA 301 Spanish Composition</td>
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<tr>
<td>SPA 303 Spanish Conversation</td>
<td>4</td>
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<tr>
<td>SPA 311, 312, 313 Survey of Spanish Literature (3, 3, 3)</td>
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<tr>
<td>SPA 401 Spanish Phonetics and Diction</td>
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<tr>
<td>SPA 300-400 Spanish Electives</td>
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<tr>
<td>EDSE 320 Language as Human Behavior</td>
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Certification in a second language may be completed by taking 27 quarter hours in that language including the requirements for Spanish.

SUGGESTED PROGRAM FOR FOREIGN LANGUAGE SPECIALIZATION (French or Spanish)

FIRST YEAR

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Communications (ENG 101, 103, SPE 101)</td>
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<tr>
<td>Cultural and Historical Foundations (Areas A, C)</td>
<td>4</td>
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<tr>
<td>Language (FRE or SPA 101-103)</td>
<td>3</td>
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<tr>
<td>Scientific Environment (Two Areas: A, B, or C)</td>
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<tr>
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SECOND YEAR

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<tr>
<td>Language (FRE or SPA 201-203)</td>
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<tr>
<td>Mathematical Environment (MATH, STAT 201)</td>
<td>4</td>
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<tr>
<td>Professional Education (EDTA 206, 307)</td>
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<td>Secondary Education (EDSE 320)</td>
<td>3</td>
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<td>Social Sciences (PSY 201, 202, SOC 201)</td>
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<td>Electives (ENG 371 recommended)</td>
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THIRD YEAR

<table>
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<th>Course</th>
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<tr>
<td>Advanced Program (BADM and ED)</td>
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<tr>
<td>Language (FRE or SPA 301, 303, 311, 313)</td>
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<td>Professional Education – Jr. Block</td>
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<td>Electives</td>
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FOURTH YEAR

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<tr>
<td>FRE or SPA 401</td>
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<td>Electives (FRE or SPA 300-400 level)</td>
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<td>Professional Education – Student Teaching</td>
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<td>Secondary Education (EDSE 421)</td>
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<td>Electives (SOC 311 recommended)</td>
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1. May be exempted.
**LIBRARY MEDIA SPECIALIZATION** (Grades K - 12)

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<thead>
<tr>
<th>REQUIRED COURSES</th>
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<tbody>
<tr>
<td><strong>Foundations</strong></td>
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</tr>
<tr>
<td>EDLS 301</td>
<td>Foundations of Librarianship 4</td>
</tr>
<tr>
<td>EDLS 321</td>
<td>Media Center Organization and Operation 4</td>
</tr>
<tr>
<td>EDLS 421</td>
<td>Administration of the Library Media Center 4</td>
</tr>
<tr>
<td>EDLS 431</td>
<td>Cataloging and Classification 4</td>
</tr>
<tr>
<td>EDLS 441</td>
<td>Reference Materials and Services 4</td>
</tr>
<tr>
<td>EDLS 451</td>
<td>Utilization of Educational Media 4</td>
</tr>
<tr>
<td>EDLS 452</td>
<td>Instructional Media Production 4</td>
</tr>
<tr>
<td>EDLS 521</td>
<td>Administrative Principles in Media Centers 4</td>
</tr>
<tr>
<td>EDLS 531</td>
<td>Non-Book Materials 4</td>
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<tr>
<td>EDLS 532</td>
<td>Acquisition of Library Materials 4</td>
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<tr>
<td><strong>Literature</strong></td>
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<tr>
<td>EDEL 307</td>
<td>Children's Literature 3</td>
</tr>
<tr>
<td>EDSE 441</td>
<td>Adolescent Literature 3</td>
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<tr>
<td><strong>Reading</strong></td>
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<tr>
<td>EDSE 442</td>
<td>Reading in the Secondary School 4</td>
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**SUGGESTED PROGRAM FOR LIBRARY-MEDIA SPECIALIZATION**

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<tbody>
<tr>
<td>Communications (ENG 101, 103, SPE 101)</td>
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<tr>
<td>Cultural and Historical Foundations (Areas A, C)</td>
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<tr>
<td>Library Media (EDLS 301)</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Scientific Environment (Areas A, B, or C)</td>
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<td>4</td>
<td>4</td>
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<tr>
<td>Social Sciences (PSY 201, 202, SOC 201)</td>
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<tr>
<td>Cultural and Historical Foundations</td>
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<tr>
<td>Library Media (EDLS 321, 451, 452)</td>
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<td>Mathematical Sciences (MATH, STAT 201)</td>
<td>4</td>
<td>4</td>
<td>8</td>
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<tr>
<td>Professional Education (EDTA 206, 307)</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Social Sciences (Area A)</td>
<td>4</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Electives</td>
<td>4</td>
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<table>
<thead>
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<th><strong>THIRD YEAR</strong></th>
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</thead>
<tbody>
<tr>
<td>Advanced Program (BADM, ENGR and ED)</td>
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<td>W</td>
<td>S</td>
</tr>
<tr>
<td>Library Media (EDLS 421, 431, 441)</td>
<td>4</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Library Media – Literature (EDEL 307, EDSE 441)</td>
<td>3</td>
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<tr>
<td>Professional Education – Elementary (EDTA 305, 306, EDPL 321)</td>
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<tr>
<td>Professional Education – Secondary (EDSE 305, EDPL 330)</td>
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<tr>
<td>Electives</td>
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<tbody>
<tr>
<td>Advanced Program (300-400 electives)</td>
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<td>Library Media (EDLS 521, 531, 532, EDSE 442)</td>
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<td>Professional Education – Student Teaching</td>
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<tr>
<td>Electives</td>
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**MATHEMATICS SPECIALIZATION** (Grades 7 - 12)

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<th>REQUIRED COURSES</th>
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<tbody>
<tr>
<td>COMP 102</td>
<td>Computer Programming 3</td>
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<tr>
<td>MATH 110, 111</td>
<td>Precalculus Mathematics (4, 4) 8</td>
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<tr>
<td>MATH 211</td>
<td>Analytic Geometry 3</td>
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<td>MATH 271</td>
<td>Logic &amp; Proof in Mathematics 3</td>
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<td>MATH 272</td>
<td>Mathematical Structures 3</td>
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<tr>
<td>MATH 315</td>
<td>Introduction to Number Theory 3</td>
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<tr>
<td>MATH 318, 319</td>
<td>Linear Algebra (3, 3) 6</td>
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<tbody>
<tr>
<td>Communications (ENG 101, 103, SPE 101)</td>
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<tr>
<td>Cultural and Historical Foundations (Areas A, C)</td>
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<tr>
<td>Library Media (EDLS 301)</td>
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<tr>
<td>Scientific Environment (Areas A, B, or C)</td>
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<tr>
<td>Social Sciences (PSY 201, 202, SOC 201)</td>
<td>3</td>
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<td><strong>TOTAL</strong></td>
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</table>
MATH 321, 322, 323  
CALCULUS (4, 4, 4)  

MATH 351, 451  
FOUNDATION OF GEOMETRY (4, 3)  

STAT 301  
FUNDAMENTALS OF PROBABILITY AND STATISTICS (4)  

STAT or MATH  
ELECTIVES (6)  

EDSE 552  
LABORATORY PROGRAMS IN MATHEMATICS (3)  

ELECTIVES (25)  

SUGGESTED PROGRAM FOR MATHEMATICS SPECIALIZATION

FIRST YEAR

COMMUNICATIONS (ENG 101, 103, SPE 101)  
MATH 110, 111, 271, COMP 102  
SCIENTIFIC ENVIRONMENT (Two Areas A, B, or C)  
SOCIAL SCIENCES (PSY 201, 202)  
TOTAL (15, 14, 16)  

SECOND YEAR

CULTURAL AND HISTORICAL FOUNDATIONS (4, 4, 4)  
MATH 211, 272, 321, 322, 323 (7, 7, 4)  
PROFESSIONAL EDUCATION (EDTA 206, 307)  
AREA A (4, 3)  
TOTAL (15, 14, 16)  

THIRD YEAR

ADVANCED PROGRAM (BADM, ENGR and ED)  
MATH 315, 318, 319, 351 (6, 7)  
PROFESSIONAL EDUCATION JR. BLOCK (16, 3)  
SOCIAL SCIENCE (SOC 201)  
TOTAL (16, 15, 14)  

FOURTH YEAR

MATH 451, STAT 301, ELECTIVES (6, 6)  
PROFESSIONAL EDUCATION (3)  
SECONDARY EDUCATION (EDSE 552) (6, 9)  
TOTAL (15, 15, 15)  

MUSIC SPECIALIZATION (Grades K - 12)

REQUIRED COURSES (76 Q.H.)

MUSICIANSHIP (32)

MUS 201, 202, 203 MUSICIANSHIP (4, 4, 4)  
MUS 301, 302, 303 MUSICIANSHIP (4, 4, 4)  
MUS 401, 402 MUSICIANSHIP (4, 4)  
PERFORMANCE (44)

MUS 100, 204, 304, 404  
MUS 104, 205, 305, 405  
SECONDARY PERFORMANCE (8)  
TOTAL (16, 15, 14)  

MUS 206, 307, 407, 507  
MUS 208, 308, 408, 508  
SECONDARY PERFORMANCE (8)  
TOTAL (16, 15, 14)  

MUSIC SPECIALIZATION (K-12)

To insure synthesis of the many musical elements into a comprehensive whole, the student is assigned to progressively organized sequences in Musicianship and Principal Performance. Initial placement in these fundamental courses is made by the faculty following a musicianship test and a performance audition to be scheduled by the student before his first registration. Subsequent progress is determined by achievement tests and performance juries administered at specific points in his musical development. The student's rate of progress in these basic sequences depends upon his own initiative and courses may be exempted by demonstrated proficiency.
A Piano Proficiency Examination must be completed satisfactorily before students can be admitted to MUS 404 in their major performing medium. In addition, all students are required to perform a faculty approved half-recital in their senior year.

Enrollment in Music Forum is required each quarter for students enrolled in Principal Performance.

### SUGGESTED PROGRAM FOR MUSIC SPECIALIZATION

#### FIRST YEAR

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Communications (ENG 101, 103, SPE 101)</td>
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<td>Musicianship (MUS 201, 202, 203)</td>
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<tr>
<td>Principal Performance (MUS 204)</td>
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<td>Scientific Environment (Two Areas A, B, or C)</td>
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#### SECOND YEAR

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<tr>
<td>Mathematical Science (MATH, STAT 201)</td>
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<tr>
<td>Musicianship (MUS 301, 302, 303)</td>
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<td>Principal Performance (MUS 304)</td>
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<td>Secondary Performance (MUS 104)</td>
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#### THIRD YEAR

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<tr>
<td>Cultural and Historical Foundations (Areas A, C)</td>
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<td>Secondary Performance (MUS 104)</td>
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<td>Social Sciences (PSY 201, 202)</td>
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<td><strong>TOTAL</strong></td>
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### FOURTH YEAR

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<td>Advanced Program (BADM, ENGR and ED)</td>
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<tr>
<td>Musicianship (MUS 401, 402)</td>
<td>4</td>
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<td>Professional Education — Student Teaching</td>
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<tr>
<td>Social Science (Area A, SOC 201)</td>
<td>3</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>14</td>
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</table>

### PHYSICS SPECIALIZATION (Grades 7 - 12)

#### REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>PHYS 103 — Astronomy</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHYS 211, 212, 213 — General Physics (4, 4, 4)</td>
<td></td>
<td></td>
<td>12</td>
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<tr>
<td>PHYS 282, 283 — Physics Laboratory (1, 1)</td>
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<tr>
<td>PHYS 344 — Modern Physics for Engineers</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHYS 354 — Optics and Wave Motion</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHYS 380 — Scientific Instruments Laboratory</td>
<td></td>
<td>3</td>
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</tr>
<tr>
<td>PHYS 382 — Physics Laboratory — Intermediate</td>
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<tr>
<td>PHYS 300-400 — Physics Electives</td>
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<td>4</td>
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<tr>
<td>EDSE 464, 465 — Physics Laboratory Teaching (2, 2)</td>
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<td>4</td>
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#### MATHEMATICS REQUIREMENTS

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>MATH 110, 111 — Precalculus Mathematics</td>
<td>8</td>
<td></td>
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</tr>
<tr>
<td>MATH 211 — Analytic Geometry (3)</td>
<td>3</td>
<td></td>
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<tr>
<td>MATH 321-323 — Calculus (4, 4, 4)</td>
<td>12</td>
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<tr>
<td><strong>ELECTIVES</strong></td>
<td>28</td>
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Certification in Mathematics may also be completed by taking a total of 24 quarter hours in Mathematics including the requirements for Physics.

### SUGGESTED PROGRAM FOR PHYSICS SPECIALIZATION

#### FIRST YEAR

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Communications (ENG 101, 102, SPE 101)</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Cultural and Historical Foundations (HUM 201)</td>
<td>4</td>
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<td></td>
</tr>
<tr>
<td>Mathematical Sciences (MATH 110, 111, 211)</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

3. A Half-Recital Required.

---

1. MUS 100 — Music Forum, required each quarter except during Student Teaching periods.

2. Piano Proficiency Required.
Physics (PHY 103) 4
Scientific Environment 4
(Area A or B)
Social Sciences (PSY 201, 202, soc 201) 3 3 3
TOTAL 15 14 16

SECOND YEAR
Mathematics (MATH 321, 322, 323) 4 4 4
Physics (PHYS 211, 212, 213, 282, 283) 5 5 4
Professional Education (EDTA 206, 307) 8
Social Sciences (Area A) 4 3 3
Electives
TOTAL 13 16 16

THIRD YEAR
Advanced Program (BADM and ED) 3 3 3
Mathematics (STAT 201) 4
Physics (PHYS 380, 344, 354) 3 6
Professional Education – Jr. Block 16
Electives 4 6
TOTAL 16 14 15

FOURTH YEAR
Advanced Program (ENGR) 3
Cultural and Historical Foundations (Areas B, C) 4 4
Physics (PHYS 382, PHYS 300-400 Electives 3 4
Professional Education – Student Teaching 15
Secondary Education (EDSE 464, 465) 2 2
Electives 3 3
TOTAL 15 15 15

SOCIAL SCIENCES SPECIALIZATION

REQUIRED COURSES (64 Q.H.)
ECON 201 Principles of Economics 3
HIST 201, 202, 203 Western Culture & Civilization (4, 4, 4) 12
HIST 311, 312, 313 American History (4, 4, 4) 12
PCL 201 American National Government 4
SOC 201 General Sociology 3
GEOG 301 Resources Geography 3
GEOG 300-400 Electives 3-4
EDSE 471 Trends in Secondary School Social Science 3

DISCIPLINE SPECIALIZATION (20 Q.H.)
Students must have additional credits in history, political science and sociology with at least 12 credits in one area. A list of recommended courses is available from the Secondary Education area. Students may select courses which emphasize Middle, Junior or Senior High subject areas.

ELECTIVES 30

SUGGESTED PROGRAM FOR SOCIAL SCIENCES SPECIALIZATION

FIRST YEAR
Communications (ENG 101, 103, SPE 101) 4 3 3
History (HIST 201, 202, 203) 4 4 4
Scientific Environment (GEOG 100, Area A or C Elective) 4 4 4
Social Sciences (PSY 201, 202, soc 201) 3 3 3
TOTAL 15 14 14

SECOND YEAR
Cultural and Historical Foundations (HUM, Area B Elective) 4
History (HIST 311, 312, 313) 4 4 4
Mathematical Sciences (MATH, STAT 201) 4 4 4
Professional Education (EDTA 206, 307) 8
Social Science (ECON 201, PCL 201, GEOG 301) 3 4 3
TOTAL 15 16 15
THIRD YEAR

Advanced Program (BADM, ENGR, ED)  F  W  S  6  3
Discipline Specialization (HIST, PCL, SOC)  4  4
Professional Education — Jr. Block  16  3
Social Studies (GEOG)  5  5
Electives  16  15  15

TOTAL  16  15  15

FOURTH YEAR

Discipline Specialization (HIST, PCL, SOC)  8  4
Professional Education — Student Teaching  3
Secondary Education (EDSE 471)  7  8
Electives  15  15
TOTAL  15  15  15

SPEECH SPECIALIZATION (Grades 7 - 12)

REQUIRED COURSES  (58 Q.H.)

Communications:
COM 100  Basic Communications  3
COM 301  Communications as a Behavioral Science  4
COM 363  Group Interaction and Decision Making  4

Speech
SPE 101  Fundamentals of Oral Communications  3
SPE 261  English Phonetics and American Dialects  5
SPE 360  Argumentation and Debate  4
SPE 361  Persuasion Motivation  4
or
SPE 362  Platform Speaking  4
SPE 366  Speech Composition  4
SPE 473  Directing Extracurricular Activities  3
COM-SPE  Electives  11-12
Taken from: COM 313, COM 463, COM 562, SPE 371, and SPE 472

DISCIPLINE SPECIALIZATION (select one)  (12-13 credits)

Drama
THA 230  Interpretation  3
THA 280  Introduction to Acting  4
THA 380  Directing  3
THA 422  High School Play Directing  3

Journalism
JRN 321  Copy Editing  4
JRN 322  Information Processing  4
JRN 300-400  Electives  8

Speech Pathology
SPE 340  Problems of Articulation  4
SPE 364  Physical Bases of Speech and Hearing  5
SPE 469  Survey: Language and Speech Problems  4

ELECTIVES  26

SUGGESTED PROGRAM FOR SPEECH SPECIALIZATION

FIRST YEAR  F  W  S
Communications (ENG 101, 102, SPE 101)  4  3  3
Scientific Environment (Areas A, B, or C)  4  4  4
Social Sciences (PSY 201, 202, SOC 201)  3  3  3
Speech (COM 100)  3
Electives  4  4  4
TOTAL  14  14  14

SECOND YEAR  F  W  S
Cultural and Historical Foundations (Areas A, B, and C)  4  4  4
Discipline Specialization (THA, JRN, or SPE)  4
Mathematical Sciences (MATH, STAT 201)  4  4  4
Professional Education (EDTA 206, 307)  3  4  8
Social Sciences (Area A)  5  4
Speech (SPE 261, COM 301)  16  16  16

1. Discipline Specialization: Students must take additional credit in History, Political Science and Sociology with at least 12 credits in one area.
### THIRD YEAR

- **Advanced Program (BADM and ED)**
  - F: 3
  - W: 3

- **Discipline Specialization**
  - (THA, JRN, or SPE)
  - F: 4
  - W: 4

- **Professional Education – Jr. Block**
  - F: 8
  - W: 4

- **SPE 360, 361 or 362, 366**
  - F: 4

- **Speech Electives (COM 313, 463, 562; SPE 371, 472)**
  - F: 4

**TOTAL**

<table>
<thead>
<tr>
<th>F</th>
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<tbody>
<tr>
<td>15</td>
<td>16</td>
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</table>

### FOURTH YEAR

- **Advanced Program (ENGR)**
  - F: 3

- **Professional Education – Student Teaching**
  - F: 15

- **Speech (SPE 423, COM 363)**
  - F: 4

- **Speech Electives (COM 313, 463, 562; SPE 371, 472)**
  - F: 4

- **Electives**
  - F: 3

**TOTAL**

<table>
<thead>
<tr>
<th>F</th>
<th>W</th>
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<tbody>
<tr>
<td>14</td>
<td>15</td>
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</tbody>
</table>

Students must choose a 12-credit concentration from either Theatre, Journalism, or Speech Pathology.

### VISUAL ARTS SPECIALIZATION (Grades K - 12)

#### REQUIRED COURSES

**Production**

- ART 201, 202, 203 Design Fundamentals (3, 3, 3)
  - F: 9

- ART 211, 212 Drawing Fundamentals (3, 3)
  - F: 6

- ART 304 Design in Advertising
  - F: 3

- ART 341 Photography
  - F: 3

- ART 351 Painting
  - F: 3

- ART 361 Printmaking
  - F: 3

- ART 381 Ceramics
  - F: 3

- ART 409 Fibers, Fabrics, Textiles and Synthetics
  - F: 3

- ART 410 Metals, Wood, Fibers and Stones
  - F: 3

- ART 435 Environmental Art
  - F: 4

**Criticism (select two)**

- ART 221, 222, 223 Art History (3, 3, 3)
  - F: 9

- ART 401 Purposes of Art
  - F: 4

- ART 433 Theory and Criticism of Visual Arts
  - F: 3

**Curriculum**

- EDVA 431 Two-Dimensional Instructional Materials
  - F: 5

**EDVA 432** Three-Dimensional Instructional Materials
  - F: 5

**EDVA 433** Graphic Instructional Materials
  - F: 5

**EDVA 501** Contemporary Art Programs
  - F: 3

**ELECTIVES**

<table>
<thead>
<tr>
<th>F</th>
<th>W</th>
<th>S</th>
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</thead>
<tbody>
<tr>
<td>13</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

### SUGGESTED PROGRAM FOR VISUAL ARTS SPECIALIZATION

#### FIRST YEAR

- ART 201, 202, 203, 211, 212
  - F: 9

- Communications (ENG 101, 103, SPE 101)
  - F: 4

- Scientific Environment
  - F: 4

- Social Sciences (PSY 201, 202, SOC 201)
  - F: 3

**TOTAL**

<table>
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<tr>
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<th>W</th>
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<tbody>
<tr>
<td>14</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

#### SECOND YEAR

- ART 304, 341, 351
  - F: 3

- Cultural and Historical Foundations (Areas A and C)
  - F: 4

- Mathematical Sciences (MATH, STAT 201)
  - F: 4

- Professional Education (EDTA 206, 207)
  - F: 8

- Visual Arts (EDVA 401, 402)
  - F: 3

**TOTAL**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>14</td>
<td>14</td>
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</tr>
</tbody>
</table>

#### THIRD YEAR

- Advanced Program (BADM and ED)
  - F: 6

- ART 361, 381, 409
  - F: 3

- Professional Education – Elementary
  - F: 6

- Professional Education – Secondary
  - F: 9

- Visual Arts (EDVA 431, 432, 433)
  - F: 5

**TOTAL**

<table>
<thead>
<tr>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>17</td>
<td>14</td>
</tr>
</tbody>
</table>

#### FOURTH YEAR

- Advanced Program (ENGR)
  - F: 3

- ART 410, 430-Criticism Electives
  - F: 7

- Professional Education – Student Teaching
  - F: 15

- Visual Arts (EDVA 501)
  - F: 13

- Electives
  - F: 13

**TOTAL**

<table>
<thead>
<tr>
<th>F</th>
<th>W</th>
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</tr>
</thead>
<tbody>
<tr>
<td>16</td>
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</tbody>
</table>
PHYSICAL EDUCATION (Grades K-12)

Chairman: Rohter, Bldg. GB 340, Phone 275-2256
Coordinator: Powell, Bldg. GB 343, Phone 275-2595
Faculty: Clark, Cleland, Gergley, Higginbotham, Hunter, H. P. Martin, Meixl, Renner.

The Physical Education Program offers a comprehensive curriculum designed to certify a student to teach as a physical education specialist in grades one through twelve. Areas of study required are: (1) Environmental Studies, 69 quarter hours; (2) General Professional Preparation, 45 quarter hours; (3) area of specialization, 46 quarter hours; and (4) Electives, 20 quarter hours.

PHYSICAL EDUCATION SPECIALIZATION (52 Q.H.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ZOOL 324</td>
<td>Anatomy</td>
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<tr>
<td>EDPE 323</td>
<td>Instructional Analysis of Team Sports</td>
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<tr>
<td>EDPE 324</td>
<td>Instructional Analysis of Tennis</td>
<td>2</td>
</tr>
<tr>
<td>EDPE 325</td>
<td>Instructional Analysis of Aquatics</td>
<td>2</td>
</tr>
<tr>
<td>EDPE 326</td>
<td>Instructional Analysis of Gymnastics and Tumbling</td>
<td>2</td>
</tr>
<tr>
<td>EDPE 327</td>
<td>Instructional Analysis of Golf</td>
<td>2</td>
</tr>
<tr>
<td>EDPE 328</td>
<td>Instructional Analysis of Wrestling</td>
<td>2</td>
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<tr>
<td>or EDPE 329</td>
<td>Choreography of Contemporary Dance</td>
<td>2</td>
</tr>
<tr>
<td>EDPE 330</td>
<td>Instructional Analysis of Rhythms</td>
<td>2</td>
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<tr>
<td>EDPE 350</td>
<td>Coaching Theory</td>
<td>3</td>
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<tr>
<td>EDPE 360</td>
<td>School and Community Recreation</td>
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<tr>
<td>EDPE 410</td>
<td>Kinesiomechanics</td>
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<td>EDPE 411</td>
<td>Exercise Physiology – Cardiovascular</td>
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<tr>
<td>EDPE 422</td>
<td>Exercise Physiology – Respiratory</td>
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<tr>
<td>EDPE 430</td>
<td>Human Performance Learning</td>
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<tr>
<td>EDPE 440</td>
<td>Rehabilitation Training Techniques</td>
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<tr>
<td>EDPE 450</td>
<td>Organization and Administration of Physical Education</td>
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</table>

Required Professional Preparation Courses:

Physical Education Major students will be required to successfully complete the Required Professional Courses (Phase I, II, III) outlined on the preceding pages. 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 quarter on a secondary 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.

HEALTH EDUCATION

In addition to physical education certification in grades one through twelve, students may be certified in Health Education.

<table>
<thead>
<tr>
<th>Certification Requirements</th>
<th>(17-18 Q.H.)</th>
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<tbody>
<tr>
<td>EDPE 407</td>
<td>Family Living Concepts</td>
</tr>
<tr>
<td>EDPE 408</td>
<td>Contemporary Health Hazards</td>
</tr>
<tr>
<td>MICR 200</td>
<td>General Microbiology</td>
</tr>
<tr>
<td>MICR 201</td>
<td>General Microbiology Laboratory</td>
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One of the Following:

- CEES 417 | Environmental Health | 4 |
- MICR 220 | Sanitary Sciences and Public Health | 3 |

SUGGESTED PROGRAM FOR PHYSICAL EDUCATION SPECIALIZATION

<table>
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<tr>
<th>Year</th>
<th>Courses</th>
<th>F</th>
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<tr>
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<td>Communications (ENG 101, SPE 101)</td>
<td>4</td>
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<td>Cultural and Historical Foundations (HUM 201) Electives</td>
<td>4</td>
<td>3</td>
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<td>Mathematical Science</td>
<td>4</td>
<td>3</td>
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<tr>
<td></td>
<td>Social Science (PSY 201, PCL 201)</td>
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<td>4</td>
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<tr>
<td></td>
<td>Physical Science</td>
<td>4</td>
<td>3</td>
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<td></td>
<td>Environmental Phys. Educ. (ESPE)</td>
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<td></td>
<td>TOTAL</td>
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<td>15</td>
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</table>
SECOND YEAR

Communications (ENG 301) 3
Scientific Environment (BIOL 100, ZOOL 100) 4 4 5
Anatomy (ZOOL 324) 3
Physical Education (EDPE 360, EDPE 323, 350, 327) 3 5 2
Environmental Physical Education (ESPE) 3
Human Development (EDTA 206) 3
Teaching Analysis (EDTA 307) 5
Social Science (SOC 201) 3
Elective 4
TOTAL 14 15 15

THIRD YEAR

Social Sciences (SOC 310) 4
Elementary Junior Block (EDPL 320, EDEL 318) 6
Physical Education (EDPE 330, 410, 324, 325, 430) 5 8
Secondary Junior Block (EDPL 330, EDTA 305, EDTA 306, EDSE 303, EDSE 380) 16
Advanced Environmental Elective 3
Elective 4
TOTAL 15 16 15

FOURTH YEAR

Physical Education (EDPE 326, 421, 328 or 329, 422, 440, 450) 6 12
Business Environment 3
Engineering Environment 3
Advanced Environment Elective 3
Education Environment 3
Senior Student Teaching (EDSE 404, EDPL 408, EDPL 421 or EDPL 430) 15
TOTAL 15 15 15

PROFESSIONAL LABORATORY PROGRAM

Chairman: Rothberg, Bldg. GC 323, Phone 275-2401
Faculty: Beadle, Blume, Harrow, McGee, Manning, G.M. Miller, Sullivan.

Practical laboratory experiences in Teacher Education Centers will be scheduled for elementary, art, physical education, and library science majors during two quarters of the junior year (Phase II). Majors in Secondary Education will be provided one-half day of practical laboratory experiences in Teacher Education Centers during one quarter of the junior year. Daily participation at a Center is required for approximately one-half day of a school day, with a prescribed sequence of courses scheduled concurrently for the other one-half day.

Practical experience also occurs in the senior year. The student is enrolled full-time for one quarter in a public elementary or secondary school under the direction of a selected teacher.

TEACHING ANALYSIS

Chairman: Hernandez, Bldg. GCB 322, Phone 275-2426
Faculty: Barker, Barr-Johnson, Brown, Carr, Craig, Dziuban, Hoover, Kysilka, Leffler, Shadgett, Solloway, A. T. Wood.

Offerings in Teaching Analysis serve as initial requirements for prospective teachers and persons contemplating teaching or education affiliated professions, and is available to all students during the sophomore or junior year. Two courses are offered:

Teaching Analysis (5 q.h.)
Human Development (3 q.h.)

During these courses, learners are given an opportunity to analyze, observe, and participate in teacher-like activities to a limited extent. Special emphasis is placed upon the influence of Human Development factors upon teaching. Successful completion of these courses is prerequisite to admission to Phase II — Developmental.

Learning Theory and Evaluation continue Teaching Analysis responsibilities in Phase II. Emphasis is upon classroom applications of generally accepted principles of learning and evaluation.
Teaching Analysis also has responsibility for upper-level environmental studies courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDTA 480</td>
<td>Overview of Education</td>
<td>3</td>
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<tr>
<td>EDTA 481</td>
<td>Trends and the Future of Education</td>
<td>3</td>
</tr>
<tr>
<td>EDTA 490</td>
<td>Education in Human Affairs</td>
<td>2</td>
</tr>
</tbody>
</table>

The above courses are offered as partial fulfillment for upper level environmental studies requirements.

ADVANCED STUDIES

Coordinator: McLain Bldg. GC 310, Phone 275-2436

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

Courses are available in:

Teaching Specializations
- Business
- Elementary Education
- English
- Exceptional Child
- Foreign Languages
- Mathematics
- Music
- Physical Education
- Reading
- Science
- Social Sciences
- Speech
- Visual Arts
- Vocational-Technical

Non-Teaching Specializations
- Administration
- Guidance
- Library-Media
- Supervision

Certification in the above specialties may be pursued independently of a degree program; a planned Master of Education degree is available in the specialties with the exception of vocational-technical education. (A degree program can possibly be worked out in some cases by special arrangements.) The programs meet the requirements for the Florida Rank II Post-graduate certificate. The degree programs are designed to develop a high level of proficiency in educational personnel. The courses are grouped into three categories:

A. Core — expanding the person's background in research, learning, developmental and measurement factors.

B. Curriculum — improving the person's skill in program planning and instructional techniques.

C. Subject field content — extending the person's knowledge in his specialization field.

ADMISSION TO ADVANCED STUDY

REGULAR STATUS

To be eligible for consideration as a regular, degree-seeking student, the student must file letters of recommendation, official transcripts showing degrees earned (a baccalaureate degree being the minimal standard) and any credit beyond the baccalaureate degree, and evidence of course work completed for a Rank III Graduate State of Florida teaching certificate.

In addition the student must have one of the following:
A. A "B" (3.0) or higher grade point average in his last ninety quarter hours of undergraduate work at an accredited college or university.

B. A score of 1000 or higher on the Graduate Record Examination.

C. 12 hours with at least a "B" (3.0) average completed after becoming a provisional student at Florida Technological University. (See requirements for provisional status.)

POST-BACCALAUREATE STATUS

The student may be placed in the post-baccalaureate category under three conditions:

A. Temporarily, because his file as described above is incomplete.

B. He does not wish to pursue a degree program.

C. He does not meet the standards for regular admission (or does not maintain his grades as a degree-seeker).

Post-baccalaureate status is not a degree-earning category. Whereas a student may earn credit in any number of courses (subject to whatever limitations the State of Florida may impose), these hours will not lead to a degree. If a student is, however, subsequently admitted to degree status, up to 18 hours of post-baccalaureate hours both from Florida Technological University and other sources may be considered for transfer into the degree program.

If the student is placed in the post-baccalaureate category because he does not have the grade point average or the GRE score, he may seek admission to the regular category by repeating the GRE and making 1000 or by being selected for provisional status. Those are the only two avenues through which a post-baccalaureate student can become a degree-seeking student. Post-baccalaureate hours can not be used to raise an undergraduate grade point average.

PROVISIONAL STATUS

A limited number of students may attain degree-seeking status via the provisional category. The provisional category is for people who do not have the necessary grade point average or GRE score but who show academic and professional promise. To be considered for provisional status, a student must file an application with the Advanced Studies Coordinator of the College of Education, indicating his desire to be considered for the change of status.

A faculty committee of each professional administrative area within the College of Education will select the students for its provisional positions.

Provisional status is limited to 12 quarter hours of credit. At the completion of twelve quarter hours as a provisional student the student will be changed to regular, if his average for the twelve hours is at least 3.0. If his average is below 3.0, he will be returned to Post-baccalaureate status.

PLANNING OF STUDENT DEGREE PROGRAM

Each advanced student is assigned an advisor from the area which offers the program of his selected specialization. Degree programs must be planned by the student and his advisor prior to completion of his thirteenth hour of graduate degree study. If prior to having an approved program on file with the Dean of the College of Education, a student takes credit at another institution and wants to have the credit transferred to his FTU program, he enrolls in these courses at his own risk.

Post-baccalaureate students can use their advisors for information and consultation but cannot be considered as planning a degree program; hence none of the following
information on the degree process applies to post-baccalaureate students.

GENERAL DEGREE REQUIREMENTS

A planned degree program requires a minimum of 45 quarter hours of graduate course work. Course work beyond the 45 hours may be prescribed by the student's advisor where prerequisites are necessary or course deficiencies apparent. A "B" (3.0) or higher average must be maintained in graduate degree work. No more than 9 hours of "C" may be counted in the degree program. If a student earns an excess of 9 hours of "C" or his grade point average drops below a "B", his status will be changed to post-baccalaureate, a non-degree category.

At least 27 quarter hours of graduate credit must be earned as a provisional or regular student in residence at Florida Technological University. Credit earned both at approved Florida Technological University off-campus centers and on campus counts as resident credit. Generally, courses numbered 500 or above are considered graduate credit; a limited number of 400 level courses may, with the approval of the degree program, be counted toward the degree requirements. The degree must be completed within five years or the student will lose credit for his early work.

Up to 18 hours may be evaluated for possible transfer into the degree program. The eighteen hour total applies to any combination of graduate credit from other universities and from post-baccalaureate work at Florida Technological University. Work from another institution must be at least the "B" level. There is a time limit which results in "elderly" credit being unacceptable. The student should check with his advisor about this. Request for acceptance of transfer may be executed on the Transfer of Credit form when the student is admitted to provisional or regular status and must be supported with an official transcript from the institution where the credit was earned.

ADMISSION TO CANDIDACY

A student will become a candidate for the Master of Education degree when he completes 25 quarter hours of graduate work in a planned program with a "B" (3.0) or higher grade point average and submits the proper application. Applications for Admission to Candidacy are available in the office of the Coordinator of Advanced Studies, College of Education, and must be submitted during the quarter the student is completing the 25th credit hour of his program.

GRADUATE STUDENT LOAD-MAXIMUM

For a graduate student, while fifteen quarter hours of graduate level course work is considered a maximum graduate academic load, twelve quarter hours is considered a usual load. For abbreviated terms, such as a shortened summer term, the maximum load will be less than 12 quarter hours. Because of limitations of the State of Florida, however, the load for any quarter may be more restrictive, resulting in a part-time program for a student.

RESEARCH REQUIREMENT

After completing Fundamental Research Procedures in Education (EDTA 601), a student will design and implement a classroom study or similar research project. The project will be planned and approved in Research Planning (EDEL, EDPE, or EDSE 696). Once the project has been carried out, credit will be granted through Research Report (EDEL, EDPE, or EDSE 698). A copy of the approved report must be submitted to the Office of Advanced Studies, College of Education, before the student's expected graduation date.
CIVIL ENGINEERING AND ENVIRONMENTAL SCIENCES
ELECTRICAL ENGINEERING AND COMMUNICATION SCIENCES
ENGINEERING MATHEMATICS AND COMPUTER SYSTEMS
ENGINEERING MECHANICS AND MATERIALS SCIENCES
INDUSTRIAL ENGINEERING AND MANAGEMENT SYSTEMS
MECHANICAL ENGINEERING AND AEROSPACE SCIENCES
ENGINEERING TECHNOLOGY

MASTER OF SCIENCE
MASTER OF SCIENCE IN ENGINEERING
MASTER OF SCIENCE IN ENVIRONMENTAL SYSTEMS MANAGEMENT
COLLEGE OF ENGINEERING

Dean: Robert D. Kersten
Assistant Dean: David L. Block

The Engineering curriculum at Florida Technological University is directed toward professional objectives. These objectives are best met by completing the bachelor’s degree program followed by additional professional education at the graduate level.

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 a selected area of concentration (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. The programs of study offered by the College are designed to assist the student in the attainment of his professional career objectives through sound academic preparation.

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.

ADMISSION

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.

Students who are well prepared usually will be able to complete the program of study leading to the degree of Bachelor of Science in Engineering in four years. In cases of inadequate secondary school preparation or other extenuating circumstances, the undergraduate program may be extended beyond the normal four-year period.

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.

GENERAL INFORMATION

Prior to enrolling in courses at the 300 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.

The degree requirements consist of:

**AREAS**

<table>
<thead>
<tr>
<th>Environmental Studies Program Basic (54)</th>
<th>69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Core</td>
<td>89</td>
</tr>
<tr>
<td>Additional Option Courses and Technical Electives</td>
<td>34</td>
</tr>
<tr>
<td><strong>TOTAL QTR. HOURS REQUIRED</strong></td>
<td>192</td>
</tr>
</tbody>
</table>

Technical electives within a chosen option are selected with the approval of the student's faculty advisor and may be made from 300 level courses or above in engineering, mathematics, the sciences, or business administration.

**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.

**SUBJECTS**

<table>
<thead>
<tr>
<th>Q.H.</th>
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<tbody>
<tr>
<td><strong>COMP 102</strong></td>
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<tr>
<td><strong>ENGR 101</strong></td>
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<td><strong>ENGR 103</strong></td>
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<tr>
<td><strong>ENGR 111</strong></td>
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<tr>
<td><strong>ENGR 151, 152</strong></td>
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<tr>
<td><strong>MATH 211</strong></td>
</tr>
<tr>
<td><strong>MATH 321, 322, 323</strong></td>
</tr>
<tr>
<td><strong>ENGR 201</strong></td>
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<tr>
<td><strong>ENGR 211</strong></td>
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<tr>
<td><strong>ENGR 221</strong></td>
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<tr>
<td><strong>MATH 324</strong></td>
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<td><strong>ENGR 311</strong></td>
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<td><strong>ENGR 312</strong></td>
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<td><strong>ENGR 322</strong></td>
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<td><strong>ENGR 323</strong></td>
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<td><strong>ENGR 331</strong></td>
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<td><strong>ENGR 332</strong></td>
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<td><strong>ENGR 341</strong></td>
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<td><strong>ENGR 342</strong></td>
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<td><strong>ENGR 351</strong></td>
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<td><strong>ENGR 352</strong></td>
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<tr>
<td><strong>ENGR 361</strong></td>
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<tr>
<td><strong>ENGR 371</strong></td>
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<tr>
<td><strong>MATH 331</strong></td>
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<tr>
<td><strong>PHYS 344</strong></td>
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<tr>
<td><strong>PHYS 354</strong></td>
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<tr>
<td><strong>ENGR 431</strong></td>
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<tr>
<td><strong>ENGR 441</strong></td>
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<tr>
<td><strong>ENG 310</strong></td>
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<tr>
<td><strong>ENGR 442</strong></td>
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<td><strong>ENGR 443</strong></td>
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<tr>
<td><strong>Biological or Earth Science Elective</strong></td>
</tr>
</tbody>
</table>

1. Includes scientific requirements and advanced program electives of the Environmental Studies Program.
ACADEMIC OPTIONS

Students in the B.S.E. program must elect an option in one of the departments of the College of Engineering. Each option permits the student to build a professional specialization on the unified engineering core and environmental studies requirements. In the development of this concept, the student is enabled to implement a well-rounded, broad-based approach to engineering problem solutions within the framework of a professional specialization.

CIVIL ENGINEERING AND ENVIRONMENTAL SCIENCES

Chairman: McLellan, Bldg. EN 415, Phone 275-2841
Faculty: Hartman, Kersten, McEwan, Myrick, Wanielista, Yousef.

The Department of Civil Engineering and Environmental Sciences offers an option in Environmental Engineering. This option is concerned primarily with the interaction of man and his environment, and the planning, design and control of systems for environmental quality management.

A program of study is available within this option which 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 fields of environmental engineering, transportation engineering, urban systems engineering, water resources engineering and related courses in structural engineering, soil mechanics, and engineering geology. These specialized courses reflect the contemporary developments and trends in systems analysis, environmental quality management, man-environment interaction as well as several of the traditional areas of civil engineering.

Environmental engineers are responsible for research, development, planning, design and construction of the structures and processes that form the basis of our modern civilization. The Environmental Engineering option encompasses water and atmospheric resources, waste treatment and pollution control, urban planning and engineering aspects of environmental health and natural
resources. The curriculum in Environmental Engineering (leading to a B.S.E. degree) is fully accredited by the Engineers’ Council for Professional Development.

The following courses are required for all students electing to pursue an option in Environmental Engineering:

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>Q.H.</th>
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<tbody>
<tr>
<td>*ENGR 341</td>
<td>Engineering Economic Analysis</td>
</tr>
<tr>
<td>*ENGR 342</td>
<td>Systems Analysis</td>
</tr>
<tr>
<td>*ENGR 361</td>
<td>Man and His Environment</td>
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<tr>
<td>CEES 411</td>
<td>Environmental Engineering – Water Supply</td>
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<tr>
<td>CEES 412</td>
<td>Environmental Engineering – Wastewater</td>
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<tr>
<td>CEES 414</td>
<td>Water and Wastewater Systems Design</td>
</tr>
<tr>
<td>*ENGR 431</td>
<td>Transport Processes</td>
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<td>*ENGR 443</td>
<td>Engineering Administration</td>
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<tr>
<td>CEES 501</td>
<td>Environmental Engineering – Chemistry I</td>
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<td>CEES 502</td>
<td>Environmental Engineering – Chemistry II</td>
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<tr>
<td>Technical Electives</td>
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<td>TOTAL QTR. HOURS REQUIRED</td>
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**TYPICAL BSE PROGRAM**

**ENVIRONMENTAL ENGINEERING OPTION**

**FIRST YEAR**

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<tr>
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<tbody>
<tr>
<td>Computer Programming (COMP 102)</td>
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<tr>
<td>Composition I (ENG 101)</td>
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<td>Engineering Graphics, Creative Design (ENGR 101, 103)</td>
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<td>Engineering Concepts (ENGR 111)</td>
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<td>Chemical Foundations of Engineering (ENGR 151, 152)</td>
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<td>Analytic Geometry and Calculus (MATH 211, 321, 322)</td>
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<td>Social Environment Electives (include ECON 201)</td>
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<td>Fundamentals of Oral Communication (SPE 101)</td>
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<td>Engineering Design Case Studies (ENGR 201)</td>
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**SECOND YEAR**

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<tr>
<td>Engineering Analysis – Statics; Dynamics; Mechanics of Materials (ENGR 211, 311, 312)</td>
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<td>Electrical Science (ENGR 221)</td>
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<td>Principles of Electrical Engineering (ENGR 321)</td>
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<td>Man and His Environment (ENGR 361)</td>
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<td>Probability and Statistics for Engineers (ENGR 371)</td>
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<td>Calculus; Intermediate Calculus; Differential Equations (MATH 323, 324, 331)</td>
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<td>Social Environment Electives</td>
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**THIRD YEAR**

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<tbody>
<tr>
<td>Electronic Engineering, Electrical Devices and Systems (ENGR 322, 323)</td>
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<tr>
<td>Thermodynamics, Fluid Mechanics, Transport Processes (ENGR 331, 332, 431)</td>
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<tr>
<td>Systems Analysis; Technical Communications (ENGR 342, 441)</td>
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<tr>
<td>Optics and Wave Motion for Engineers (PHYS 354)</td>
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<td>3</td>
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<td>Structure and Properties of Materials; Materials of Engineering (ENGR 351, 352)</td>
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<tr>
<td>Technical Electives</td>
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<tr>
<td>Humanities (include HUM 201)</td>
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<tr>
<td>Environmental Studies – Advanced Subjects</td>
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<td>TOTAL</td>
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</table>

**FOURTH YEAR**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Operations Research (ENGR 442)</td>
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<td>Engineering Administration (ENGR 443)</td>
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<td>Modern Physics for Engineers (PHYS 344)</td>
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<td>Environmental Engineering – Chemistry (CEES 501, 502)</td>
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<td>Environmental Engineering – Water Supply (CEES 411)</td>
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<tr>
<td>Environmental Engineering – Wastewater (CEES 412)</td>
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<td>Sanitary Systems Design (CEES 414)</td>
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<tr>
<td>Technical Electives</td>
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<tr>
<td>Environmental Studies – Advanced Subjects</td>
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<tr>
<td>Biological or Earth Sciences</td>
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<tr>
<td>Humanities</td>
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<tr>
<td>TOTAL</td>
<td>16</td>
<td>16</td>
<td>17</td>
</tr>
</tbody>
</table>

* Included in Engineering Core
ELECTRICAL ENGINEERING AND COMMUNICATION SCIENCES

Chairman: Mathews, Bldg. EN 315, Phone 275-2786
Faculty: Erickson, Harden, McCarter, Patz, Petrasko, Phillips, 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 analog and digital computer systems, 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.

The following courses are required of all students electing to pursue an option in Electrical Engineering:

SUBJECT       Q.H.
EECS 321       Electrical Networks       4
EECS 322       Electronic Engineering   4
ENGR 323       Electrical Devices and Systems 4
EECS 341       Electromagnetic Fields   4
ENGR 342       Systems Analysis         3
ENGR 352       Materials of Engineering 3
PHYS 354       Optics and Wave Motion for Engineers 3
ENGR 371       Probability and Statistics for Engineers 3
EECS 411       Logical Component Design 4
ENGR 421       Linear Control Systems   4
Technical Electives  14
TOTAL QTR. HOURS REQUIRED  50

TYPICAL BSE PROGRAM
ELECTRICAL ENGINEERING OPTION

FIRST YEAR

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>F</th>
<th>W</th>
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<tbody>
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<tr>
<td>Social Sciences Electives</td>
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<tr>
<td>Fundamentals of Oral Communication (SPE 101)</td>
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<td>Engineering Design Case Studies (ENGR 201)</td>
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<tr>
<td>Economics and Man (ECON 201)</td>
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SECOND YEAR

<table>
<thead>
<tr>
<th>SUBJECT</th>
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<tbody>
<tr>
<td>Engineering Analysis — Statics; Dynamics;</td>
<td>4</td>
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<tr>
<td>Mechanics of Materials (ENGR 211, 311, 312)</td>
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<td></td>
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<tr>
<td>Electrical Science (ENGR 221)</td>
<td>4</td>
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<tr>
<td>Principles of Electrical Engineering (ENGR 321)</td>
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<tr>
<td>Engineering Economic Analysis (ENGR 341)</td>
<td>3</td>
<td></td>
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<tr>
<td>Man and His Environment (ENGR 361)</td>
<td>3</td>
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</tbody>
</table>

* Included in Engineering Core.
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 undergraduate engineering option in Engineering Mathematics and Computer Systems at Florida Technological University is inter-disciplinary and allows considerable flexibility in tailoring programs to fit individual student interest. Requirements for the major are fulfilled by completing thirty-eight (38) quarter credit hours of course work in the EMCS or related subject matter along with the engineering core and environmental studies requirements.

The following courses are required for all students electing to pursue this option:

<table>
<thead>
<tr>
<th>SUBJECT</th>
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<tbody>
<tr>
<td>MATH 331</td>
<td>Differential Equations</td>
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<tr>
<td>ENGR 342</td>
<td>Systems Analysis</td>
</tr>
<tr>
<td>ENGR 371</td>
<td>Probability and Statistics</td>
</tr>
<tr>
<td>ENGR 442</td>
<td>Operations Research</td>
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<tr>
<td>ENGR 443</td>
<td>Engineering Administration</td>
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<tr>
<td>ENGR 421</td>
<td>Linear Control Systems</td>
</tr>
<tr>
<td>EMCS 431</td>
<td>Mini-Computers in Engineering</td>
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<td>EMCS 432</td>
<td>Principles of Computer Control</td>
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<td>EMCS 470</td>
<td>Engineering Mathematical Systems</td>
</tr>
<tr>
<td>EECS 414</td>
<td>Analog Computers</td>
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</table>

* Included in Engineering Core.
TYPICAL BSE PROGRAM
ENGINEERING MATHEMATICS AND COMPUTER SYSTEMS OPTION

<table>
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<th>F</th>
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<tr>
<td>Chemical Foundations of Engineering (ENGR 151, 152)</td>
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<tr>
<td>Analytical Geometry and Calculus (MATH 211, 321, 322)</td>
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<td>Composition I (ENG 101)</td>
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<td>Engineering Graphics; Creative Design (ENGR 101, 103)</td>
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<td>Computer Programming (COMP 102)</td>
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<td>Man and Environment (ENGR 361)</td>
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<td>Fundamentals of Oral Communication (SPE 101)</td>
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<td>Principles of Economics (ECON 201)</td>
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<tr>
<td>Engineering Concepts (ENGR 111)</td>
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<td>Calculus, Differential Equations (MATH 323, 324, 331)</td>
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<td>Electrical Science — Statics (ENGR 221, 211)</td>
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<td>Engineering Economy; Probability and Statistics for Engineers (ENGR 341, 371)</td>
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<td>Engineering Case Studies (ENGR 201)</td>
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<tr>
<td>Linear Control Systems (ENGR 421)</td>
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<tr>
<td>Cultural or History Elective (HUM 201)</td>
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<td>Technical Communications (ENGR 441 or ENG 310)</td>
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<td>Dynamics; Thermodynamics; Fluid Mechanics (ENGR 311, 312, 332)</td>
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<tr>
<td>Mechanics of Materials (ENGR 312)</td>
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<td>Systems Analysis; Operations Research, Engineering Administration (ENGR 342, 442, 443)</td>
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<td>Modern Physics, Optics and Wave Motion (PHYS 344, 354)</td>
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<td>Engineering Math Systems (EMCS 470)</td>
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<td>Numerical Methods in Systems Analysis (IEMS 447)</td>
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<td>Environmental Studies – Advanced Subjects</td>
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<tr>
<td>Structure and Properties of Materials; Materials of Engineering (ENGR 351, 352)</td>
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<tr>
<td>Principles of Electrical Engineering; Electrical Networks; Electronic Engineering (ENGR 321, 322, 323)</td>
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<td>Analog Computers (EECS 414)</td>
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<tr>
<td>Mini-computers in Engineering; Principles of Computers (EMCS 431, 432)</td>
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<tr>
<td>Engineering Applications of Computer Methods (IEMS 431)</td>
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<td>Transport Processes (ENGR 431)</td>
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<tr>
<td>Technical Electives</td>
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<tr>
<td>Environmental Studies (Advanced)</td>
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<td><strong>TOTAL</strong></td>
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| **TOTAL QTR. HOURS REQUIRED** | 192 |

ENGINEERING MECHANICS AND MATERIALS SCIENCES

Chairman: *Jenkins* Bldg. EN 118, Phone 275-2268
Faculty: *Baldwin, Block, Carroll, Goldstein, Hagedoorn, Smith*

Engineers in the field of materials science are instrumental in providing the materials (metals, polymers, ceramic, concrete,
composites) which make it possible to build the structures, machines, public works, transportation systems, energy conversion systems, space craft and industrial products conceived by their engineering colleagues. The Materials Engineer has technical expertise in both the properties of materials and the reasons why materials have these properties. In addition he may be involved in developing new materials or in the reuse and recycling, or improvement of existing materials.

The option in Materials Engineering, which is the departmental emphasis at the undergraduate level, encompasses the principal areas of importance in this very broad field. These areas are the structure and properties of engineering materials, materials engineering, metallurgy, micromechanics, and composite materials. It should be noted that much of the field of materials science is involved with experimental activity and the curriculum includes appreciable experimental work.

Innovative use of materials is essential in every engineering system from the simplest to the most sophisticated. Consequently, our highly industrialized society will continue to demand increasing numbers of engineers competent in materials science. Graduates may find employment in a wide range of activities from producers of metals, ceramics, and polymers to industries producing computers and semi-conductor devices, dental materials and medical appliances, to a host of items fabricated from plastics and in the newly emerging field of recycling of materials resources. In these activities, materials engineers may be found in research, development, operations, or design functions.

The following courses are required for all students electing to pursue an option in Materials Engineering:

<table>
<thead>
<tr>
<th>SUBJECT</th>
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<tbody>
<tr>
<td>*ENGR 342</td>
<td>Systems Analysis</td>
</tr>
<tr>
<td>*PHYS 344</td>
<td>Modern Physics for Engineers</td>
</tr>
<tr>
<td>*ENGR 352</td>
<td>Materials of Engineering</td>
</tr>
<tr>
<td>*ENGR 371</td>
<td>Probability and Statistics for Engineers</td>
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<tr>
<td>EMMS 413</td>
<td>Thermodynamic Properties of Materials</td>
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<tr>
<td>EMMS 414</td>
<td>Mechanical Properties of Materials</td>
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<tr>
<td>EMMS 421</td>
<td>Theory of Crystalline Solids</td>
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<tr>
<td>EMMS 430</td>
<td>Structure and Properties of Alloys</td>
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<tr>
<td>*ENGR 431</td>
<td>Transport Processes</td>
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<tr>
<td>EMMS 433</td>
<td>Physical Metallurgy</td>
</tr>
<tr>
<td>EMMS 435</td>
<td>Structure and Properties of Ceramics and Polymers</td>
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</table>

**Technical Electives**

**TOTAL QTR. HOURS REQUIRED**

**TYPICAL BSE PROGRAM**

**MATERIALS ENGINEERING OPTION**

**FIRST YEAR**

<table>
<thead>
<tr>
<th>COURSE/DESCRIPTION</th>
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<tbody>
<tr>
<td>Computer Programming (COMP 102)</td>
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<tr>
<td>Composition I (ENG 101)</td>
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<tr>
<td>Engineering Graphics; Creative Design (ENGR 101, 103)</td>
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<tr>
<td>Engineering Concepts (ENGR 111)</td>
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<tr>
<td>Chemical Foundations of Engineering (ENGR 151, 152)</td>
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<tr>
<td>Analytic Geometry; Calculus (MATH 211, 321, 322)</td>
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<td>Introduction to Speech (SPE 101)</td>
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<td>Engineering Design Case Studies (ENGR 201)</td>
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<td>Cultural &amp; Historical Foundations Electives</td>
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**TOTAL**

17 17 16

**SECOND YEAR**

<table>
<thead>
<tr>
<th>COURSE/DESCRIPTION</th>
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<tr>
<td>Engineering Analysis — Statics; Dynamics; Mechanics of Materials (ENGR 211, 311, 312)</td>
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<td>4</td>
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<tr>
<td>Electrical Science (ENGR 221)</td>
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<td>4</td>
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<tr>
<td>Thermodynamics (ENGR 331)</td>
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<tr>
<td>Engineering Economic Analysis (ENGR 341)</td>
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<td></td>
<td>3</td>
</tr>
<tr>
<td>Structure and Properties of Materials, Materials of Engineering (ENGR 351, 352)</td>
<td>3</td>
<td>3</td>
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</tbody>
</table>

* Included in Engineering Core.
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.

The following courses are required for all students electing to pursue an option in Industrial Engineering:

**SUBJECTS**  
**Q.H.**

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>Q.H.</th>
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<tbody>
<tr>
<td>IEMS 301</td>
<td>Management Standards</td>
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<tr>
<td>*ENGR 341</td>
<td>Engineering Economic Analysis</td>
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<td>*ENGR 342</td>
<td>Systems Analysis</td>
</tr>
<tr>
<td>*ENGR 371</td>
<td>Probability and Statistics for Engineers</td>
</tr>
<tr>
<td>IEMS 424</td>
<td>Management Control Systems I</td>
</tr>
<tr>
<td>*ENGR 442</td>
<td>Operations Research</td>
</tr>
<tr>
<td>*ENGR 443</td>
<td>Engineering Administration</td>
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* Included in Engineering Core.
IEMS 461 Human Engineering 3
IEMS 432 System Simulation with Digital Computers 3
IEMS 447 Numerical Methods in Systems Analysis 3
IEMS 532 Management Information Systems I 4
IEMS 414 Industrial Facilities Planning and Design 3

Technical Electives 12
TOTAL QTR. HOURS REQUIRED 49

TYPICAL BSE PROGRAM
INDUSTRIAL ENGINEERING OPTION

FIRST YEAR

Chemical Foundations of Engineering (ENGR 151, 152) 3 3
Analytical Geometry and Calculus (MATH 211, 321, 322) 3 4 4
Composition I (ENG 101) 4
Engineering Graphics; Creative Design (ENGR 101, 103) 3 3
Computer Programming (COMP 102) 3
Man and Environment (ENGR 361) 3
Fundamentals of Oral Communication (SPE 101) 3
Principles of Economics (ECON 201) 3
Social Sciences 3 3 3
TOTAL 16 16 16

SECOND YEAR

Engineering Concepts (ENGR 111) 4
Calculus; Differential Equations (MATH 323, 324, 331) 4 4 4
Electrical Science; Statics (ENGR 221, 211) 4 4
Engineering Economy; Probability and Statistics for Engineers (ENGR 341, 371) 3 3
Engineering Case Studies (ENGR 201) 1
Management Standards (IEMS 301) 3
Cultural or History Elective (HUM 201 required) 4 4
Technical Communications (ENGR 441 or ENGR 310) 3
Scientific Environmental Elective 3
TOTAL 16 15 17

THIRD YEAR

Dynamics; Thermodynamics, Fluid Mechanics (ENGR 311, 331, 332) 4 3 4
Cultural or History Elective 4
Mechanics of Materials (ENGR 312) 4
Systems Analysis; Operations Research, Engineering Administration (ENGR 342, 442, 443) 3 3 3
Modern Physics, Optics and Wave Motion (PHYS 344, 354) 3 3
Management Control Systems I; System Simulation with Digital Computers (IEMS 424, 432) 3 3
Technical Electives 3 3
Environmental Studies (Advanced) 3
TOTAL 17 15 15

FOURTH YEAR

Structure and Properties of Materials; Materials of Engineering (ENGR 351, 352) 3 3
Principles of Electrical Engineering; Electrical Networks; Electronic Engineering (ENGR 321, 322, 323) 4 4 4
Numerical Methods in Systems Analysis; Management Information Systems I (IEMS 447, 532) 3 4
Human Engineering; Industrial Facilities Planning and Design (IEMS 461, 414) 3 3
Transport Processes (ENGR 431) 3
Technical Electives 4 5
Environmental Studies — Advanced Subjects 3 3
TOTAL 17 16 16

MECHANICAL ENGINEERING AND AEROSPACE SCIENCES

Chairman: Evans Bldg. EN 115, Phone 275-2416
Faculty: Beck, Edwards, Nimmo, Rapson, Smith, 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, flight vehicle structures, measurement systems engineering, mechanical systems design and control, energy conversion and power systems, and thermal sciences.

The program is specifically designed to give the student a broad-based undergraduate engineering science 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 successfully pursue 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.

The following courses are required for all students electing to pursue an option in Mechanical Engineering:

**SUBJECTS**

<table>
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<tbody>
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* Included in Engineering Core.

**TYPICAL BSE PROGRAM**

**MECHANICAL ENGINEERING OPTION**

**FIRST YEAR**

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<td>MEAS 341 Kinematics and Kinetics of Machines</td>
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<tr>
<td>*ENGR 342 Systems Analysis</td>
<td>3</td>
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<tr>
<td>MEAS 342 Machine Design and Analysis</td>
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<tr>
<td>MEAS 351 Measurement Systems</td>
<td>3</td>
</tr>
<tr>
<td>*ENGR 352 Materials of Engineering</td>
<td>3</td>
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<td>*ENGR 371 Probability and Statistics</td>
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<td>MEAS 423 Vibrations</td>
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**MEAS 482 Heat Transfer**

**Technical Electives**

**TOTAL QTR. HOURS REQUIRED**

16 16 15

**SECOND YEAR**

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<td>*ENGR 342 Systems Analysis</td>
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<td>MEAS 342 Machine Design and Analysis</td>
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<tr>
<td>MEAS 351 Measurement Systems</td>
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<td>*ENGR 352 Materials of Engineering</td>
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</tr>
<tr>
<td>*ENGR 371 Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 423 Vibrations</td>
<td>4</td>
</tr>
</tbody>
</table>

**TOTAL QTR. HOURS**

15 16 15

*Amended by *Included in Engineering Core.
### THIRD YEAR

<table>
<thead>
<tr>
<th>Course Description</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinematics and Kinetics of Machines; Machine Design and Analysis (MEAS 341, 342)</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Thermodynamics; Thermodynamics and Transport Processes; Systems Analysis (ENGR 331, 431, 342)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Economic Analysis; Fluid Mechanics; Probability and Statistics for Engineers (ENGR 341, 332, 371)</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Electrical Engineering; Electronic Engineering; Electrical Devices Systems (ENGR 321, 322, 323)</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>MEAS (approved elective)</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Humanities (300 level)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science Environment</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>17</td>
<td>15</td>
<td>17</td>
</tr>
</tbody>
</table>

### FOURTH YEAR

<table>
<thead>
<tr>
<th>Course Description</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Systems; Vibration Analysis; Heat Transfer (MEAS 351, 423, 482)</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>MEAS (3 quarters of approved electives)</td>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Structure and Property of Materials; Materials of Engineering (ENGR 351, 352, 481)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Operations Research; Engineering Administration (ENGR 442, 443)</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Modern Physics for Engineers; Optics Optics and Wave Motion for Engineers (PHYS 354, 344)</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BADM (300 level)</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>EDUC (48-)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>16</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

### BACHELOR OF ENGINEERING TECHNOLOGY DEGREE PROGRAM

Engineering Technology is that part of the technological field which requires the application of scientific and engineering knowledge and methods combined with technical skills in support of engineering activities; it lies in the occupational spectrum between the craftsman and the engineer at the end of the spectrum closest to the engineer. 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 the at the same time, possessing a broad and comprehensive education in the field. As such he will be a 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 degree requirements consist of:

#### Typical Distribution of Credits:

<table>
<thead>
<tr>
<th>Environmental Studies Program</th>
<th>69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>54</td>
</tr>
<tr>
<td>Community College (39)</td>
<td>1</td>
</tr>
<tr>
<td>F.T.U. (15)</td>
<td></td>
</tr>
<tr>
<td>Advanced</td>
<td>15</td>
</tr>
<tr>
<td>Additional Basic Science, Mathematics and Technical Sciences (included in Technology Core)</td>
<td>50</td>
</tr>
<tr>
<td>Community College (9)</td>
<td></td>
</tr>
<tr>
<td>F.T.U. (41)</td>
<td></td>
</tr>
<tr>
<td>Technical Specialty and Related Studies</td>
<td>73</td>
</tr>
<tr>
<td>Community College (48)</td>
<td></td>
</tr>
<tr>
<td>F.T.U. (25)</td>
<td></td>
</tr>
</tbody>
</table>

1Includes algebra, trigonometry, basic science, English, speech, humanities and social sciences.
ENGINEERING TECHNOLOGY COURSE REQUIREMENTS

The engineering technology curriculum includes the Environmental Studies Program, additional basic sciences, and technical specialty courses with related electives distributed as noted above. The program to be taken at the University, assuming good articulation with the Associate of Science program being transferred includes the following:

SUBJECTS Q.H.
ENVIRONMENTAL STUDIES AND ADDITIONAL BASIC COURSES
MATH 311 Applied Calculus 4
MATH 312 Applied Calculus 4
CHEM (Chemistry) 6
SCIENCE ELECTIVE 6
HUM Humanities Elective 6
BADM 3- BUSINESS ADMINISTRATION 3
EDTA Education Elective 6
ENGR 48- ENGINEERING ELECTIVE 3
TOTAL QTR. HOURS REQUIRED 53

ENGINEERING TECHNOLOGY COURSES - TECHNICAL SCIENCES
COMP 102 Computer Programming 3
ENT 302 Technical Economic Analysis 3
ENT 305 Applied Mechanics 4
ENT 306 Materials and Processes* 4
ENT 401 Electricity and Electronics* 5
ENT 402 Strength of Materials 4
ENT 403 Applied Thermodynamics 4
TOTAL QTR. HOURS REQUIRED 18

*Typically taken at Community College.

Chairman: (Acting) McLellan Bldg. EN 415, Phone 275-2841
Faculty: Griffith, Skinner

The options (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 required for all students electing to pursue that option.

**ELECTRONICS TECHNOLOGY**

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT 321</td>
<td>Electronics Circuits</td>
</tr>
<tr>
<td>ENT 322</td>
<td>Digital Circuits</td>
</tr>
<tr>
<td>ENT 421</td>
<td>Computer Systems</td>
</tr>
<tr>
<td>ENT 422</td>
<td>Antennas and Propagation</td>
</tr>
<tr>
<td>ENT 423</td>
<td>Feedback Control</td>
</tr>
<tr>
<td>ENT 424</td>
<td>Communications Systems</td>
</tr>
</tbody>
</table>

**ENVIRONMENTAL CONTROL TECHNOLOGY**

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT 331</td>
<td>Hydraulics/Hydrology</td>
</tr>
<tr>
<td>ENT 332</td>
<td>Water Supply Systems</td>
</tr>
<tr>
<td>ENT 333</td>
<td>Wastewater Systems</td>
</tr>
<tr>
<td>ENT 431</td>
<td>Treatment Plant Analysis and Control</td>
</tr>
<tr>
<td>ENT 432</td>
<td>Environmental Sampling and Analysis</td>
</tr>
<tr>
<td>ENT 433</td>
<td>Air Pollution Control</td>
</tr>
<tr>
<td>ENT 434</td>
<td>Solid Wastes Management</td>
</tr>
</tbody>
</table>

**DESIGN TECHNOLOGY**

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT 341</td>
<td>Contracts and Specifications</td>
</tr>
<tr>
<td>ENT 342</td>
<td>Electro-Mechanical Design</td>
</tr>
<tr>
<td>ENT 343</td>
<td>Product Design</td>
</tr>
<tr>
<td>ENT 441</td>
<td>Structural Design</td>
</tr>
<tr>
<td>ENT 442</td>
<td>Design Integration</td>
</tr>
<tr>
<td>ENT 443</td>
<td>Senior Project</td>
</tr>
</tbody>
</table>

**OPERATIONS TECHNOLOGY**

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT 351</td>
<td>Work Analysis</td>
</tr>
<tr>
<td>ENT 352</td>
<td>Cost Estimating and Analysis</td>
</tr>
<tr>
<td>ENT 353</td>
<td>Computer Methods in Industry</td>
</tr>
<tr>
<td>ENT 451</td>
<td>Process Planning and Scheduling</td>
</tr>
<tr>
<td>ENT 452</td>
<td>Occupational Safety</td>
</tr>
<tr>
<td>ENT 453</td>
<td>Quality Control</td>
</tr>
<tr>
<td>ENT 454</td>
<td>Maintenance Operation</td>
</tr>
</tbody>
</table>

**INTERDISCIPLINARY PROGRAMS**

It is the desire of the College of Engineering to provide interdisciplinary programs to selected students who desire to prepare for some very specialized professional objective. Interested students should consult the Dean for the appointment of a faculty advisor knowledgeable in the special interdisciplinary area. Programs presently under development include:

- Biomedical Engineering
- Engineering Chemistry
- Engineering Design
- Engineering Operations
- Engineering Physics
- History of Engineering and Technology
- Public Systems Analysis
- Systems Engineering

**GRADUATE PROGRAM**

The College of Engineering offers graduate work leading to the Master of Science in Engineering, Master of Science, or Master of Science in Environmental Systems Management degrees. The programs are designed to provide for advanced professional engineering education (M.S.E.) or specialized education in selected areas (M.S. or M.S.E.S.M.).

Interested students should review information relative to admissions requirements presented in the Graduate Studies section of the catalog. An early contact with the appropriate department chairman is advisable to assist the student with an orderly and effective program of study. Each of the six departments in the college are cooperating in the graduate program activity.
DEGREE REQUIREMENTS

MASTER OF SCIENCE IN ENGINEERING DEGREE

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.

TYPICAL PROGRAM OF STUDY

<table>
<thead>
<tr>
<th>Academic Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Core Courses (at least one advanced</td>
<td>18</td>
</tr>
<tr>
<td>course in each departmental subdiscipline beyond</td>
<td></td>
</tr>
<tr>
<td>B.S.E. requirements)</td>
<td></td>
</tr>
<tr>
<td>Additional subdiscipline-speciality courses</td>
<td>9-15</td>
</tr>
<tr>
<td>Additional advanced mathematics, computer systems,</td>
<td></td>
</tr>
<tr>
<td>natural sciences, engineering sciences, or</td>
<td></td>
</tr>
<tr>
<td>appropriate supportive areas (beyond B.S.E. core</td>
<td></td>
</tr>
<tr>
<td>requirements or equivalent)</td>
<td>9-15</td>
</tr>
<tr>
<td>Thesis or Research Report</td>
<td>9 or 3</td>
</tr>
<tr>
<td>TOTAL M.S.E. PROGRAM</td>
<td>45</td>
</tr>
</tbody>
</table>

M.S.E. DEPARTMENTAL COURSE REQUIREMENTS

Each student will select, with the approval of his graduate committee, a minimum of 18 credits in departmental subdiscipline 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.

ENVIRONMENTAL ENGINEERING OPTION — at least one course from each of the following subdiscipline groupings:

- Environmental Engineering
- Water Resources Engineering
- Transportation and Urban Systems Engineering
- Structures, Soil Mechanics and Foundations, Geology

ELECTRICAL ENGINEERING OPTION — at least one course from each of the five subdiscipline groupings other than the chosen specialization area:

- Circuit Theory
- Communications Systems
- Control Systems
- Digital Systems
- Electromagnetic Theory
- Electronic Circuits
- Hybrid Systems
- Optical Communication Systems

ENGINEERING MATHEMATICS and COMPUTER SYSTEMS OPTION — the core requirements will be met by the courses listed plus one course from each subdiscipline area listed:

- Engineering Data Reduction (EMCS 530)
- Engineering Mathematical Analysis (EMCS 572)
- Numerical Analysis in Engineering (EMCS 575)
- Engineering Mathematics
- Computer Systems
- Systems Design
INDUSTRIAL ENGINEERING OPTION — at least one course from each of the following subdiscipline groupings:

- Computer Simulation
- Human Engineering
- Industrial Engineering
- Management Systems
- Operations Research
- Systems Engineering

MATERIALS ENGINEERING OPTION — the following courses will meet the core requirement:

- EMMS 501 Electron Microscopy I 3
- or EMMS 502 X-Ray Diffraction 3
- EMMS 600 Physical Metallurgy I 3
- EMMS 610 Mechanical Metallurgy I 3
- EMMS 620 Physical Ceramics 3
- EMMS 630 Polymer Science 3
- One course from the Mechanics and Structures group

MECHANICS AND STRUCTURES OPTION — the following courses will meet the core requirement:

- EMMS 541 Inter-Mechanics of Materials 4
- EMMS 642 Continuum Mechanics 4
- EMMS 641 Theory of Elasticity 4
- or EMMS 652 Theory of Plates and Shells 4
- EMMS 661 Advanced Dynamics 3
- One Course from the Materials Engineering group

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

- MEAS 538 Environmental Thermodynamics 3
- or MEAS 680 Classical Thermodynamics 3
- MEAS 542 Principles of Design 3
- MEAS 643 Mechanical Design 3
- MEAS 653 Experimental Measurements 3
- MEAS 674 Mechanics of Viscous Flow 3
- MEAS 685 Conduction Heat Transfer 3
- or MEAS 686 Convection Heat Transfer 3
- or MEAS 688 Radiation Heat Transfer 3

MASTER OF SCIENCE DEGREE

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.

TYPICAL PROGRAM OF STUDY

Academic Area

Departmental core or subdiscipline-specialty courses 24 or 30

Additional advanced mathematics (beyond MATH 321), computer systems, natural sciences, engineering sciences, or appropriate supportive areas 12

Thesis or Research Report 9 or 3

TOTAL M.S. PROGRAM 45

MASTER OF SCIENCE IN ENVIRONMENTAL SYSTEMS MANAGEMENT DEGREE

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 attained the bachelor’s degree in engineering or science disciplines closely related to the environmental sciences and environmental or systems engineering.

**TYPICAL PROGRAM OF STUDY**

The following courses may be used in the program. A typical degree program will consist of a unified group of core courses plus optional/elective courses and a research report.

**CORE PROGRAM**

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEMS 431</td>
<td></td>
</tr>
<tr>
<td>Engineering Application of Computer Methods</td>
<td>3</td>
</tr>
<tr>
<td>CEES 501, 502</td>
<td></td>
</tr>
<tr>
<td>Environmental Engineering Chemistry</td>
<td>3, 3</td>
</tr>
<tr>
<td>IEMS 532</td>
<td></td>
</tr>
<tr>
<td>Management Information Systems I</td>
<td>4</td>
</tr>
<tr>
<td>CEES 611, 612</td>
<td></td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>4, 4</td>
</tr>
<tr>
<td>CEES 614</td>
<td></td>
</tr>
<tr>
<td>Sanitary Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>CEES 615</td>
<td></td>
</tr>
<tr>
<td>Atmospheric Pollution Control</td>
<td>3</td>
</tr>
<tr>
<td>IEMS 602</td>
<td></td>
</tr>
<tr>
<td>Engineering Economic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IEMS 678</td>
<td></td>
</tr>
<tr>
<td>Public Operating Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>XXX 698</td>
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</tr>
<tr>
<td>Research Report</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>

**OPTIONAL AREAS**

Group 1 (3 of 4) Typical

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEES 461</td>
<td></td>
</tr>
<tr>
<td>Transportation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEES 471</td>
<td></td>
</tr>
<tr>
<td>Urban Planning</td>
<td>3</td>
</tr>
<tr>
<td>CEES 618</td>
<td></td>
</tr>
<tr>
<td>Solid Waste Management</td>
<td>3</td>
</tr>
<tr>
<td>IEMS 679</td>
<td></td>
</tr>
<tr>
<td>Public Systems Planning and Resource Allocation</td>
<td>3</td>
</tr>
</tbody>
</table>

**Group II (3 of 4) Instrumentation**

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EECS 531</td>
<td></td>
</tr>
<tr>
<td>Environmental Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>EECS 535</td>
<td></td>
</tr>
<tr>
<td>Electric Power Generation and Distribution</td>
<td>3</td>
</tr>
<tr>
<td>EECS 625</td>
<td></td>
</tr>
<tr>
<td>Computer Simulation of Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>EECS 645</td>
<td></td>
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<tr>
<td>Remote Sensing Optical Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**Group III (3 of 4) Atmospheric**

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAS 523</td>
<td></td>
</tr>
<tr>
<td>Acoustics</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 538</td>
<td></td>
</tr>
<tr>
<td>Environmental Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 653</td>
<td></td>
</tr>
<tr>
<td>Experiment Measurements</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 673</td>
<td></td>
</tr>
<tr>
<td>Transport Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL MSESM PROGRAM REQUIREMENTS – 45 CREDITS**
COLLEGE OF
HUMANITIES AND FINE ARTS

ART
ENGLISH
FOREIGN LANGUAGES
  FRENCH
  GERMAN
  ITALIAN
  RUSSIAN
  SPANISH
HISTORY
HUMANITIES
MUSIC
PHILOSOPHY
PRE-LAW
THEATRE
COLLEGE OF HUMANITIES AND FINE ARTS

C. N. Micarelli, Dean
H. C. Combs, Assistant Dean

The College of Humanities and Fine Arts endeavors to fulfill with the other five colleges of the University 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-Business 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 and in offering electives suitable to all students.

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

If a student does not demonstrate acceptable skills in written or spoken English, he may be referred by an instructor to the Dean. Additional course work or an individual program of study may be assigned and must be satisfactorily completed before graduation.

HUMANITIES AND FINE ARTS – BUSINESS 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 requirements for the college major are the same as those which must be fulfilled by a student who does not choose this plan of study.

A PROGRAM TO COMBINE A MAJOR IN THE COLLEGE OF HUMANITIES AND FINE ARTS WITH BUSINESS ADMINISTRATION

Environmental Studies Program

<table>
<thead>
<tr>
<th>Basic (54)</th>
<th>Advanced (15)</th>
</tr>
</thead>
</table>

Major Area Credits

<table>
<thead>
<tr>
<th>Art (46)</th>
<th>Humanities (48)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English (48)</td>
<td>Music (96)</td>
</tr>
<tr>
<td>Foreign Language (45)</td>
<td>Philosophy (48)</td>
</tr>
<tr>
<td>History (48)</td>
<td>Theatre (55)</td>
</tr>
</tbody>
</table>

Business Area Credits

| ECON 201, 202, 203 (9) | (31-36) |
| ACCY 307* or ACCY 211, 212* (5-8) |
| A minimum of four of the following must be taken: |
| BADM 371 (3)* | MKTG 301 (5)* |
| FIN 301 (5)* | STAT 201 or 301 (4)* |
| MGMT 301 (5)* |

* Some of these courses may be used to satisfy the Environmental Studies program requirements.
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.

The student's program should be established in consultation with an advisor from the area of concentration.

ART HISTORY CONCENTRATION

For a major in art with art history concentration a minimum of 46 quarter hours in art courses is required. These courses should include 30 quarter hours of art history courses (to include ART 221, 222, and 223), 6 quarter hours in design fundamental courses, 4 quarter hours in ART 231, and 6 quarter hours in any additional studio courses. In the senior year a satisfactory grade in a comprehensive art history examination and a reading knowledge of one foreign language are required.

The purpose of this category of credits is to tailor the program to the particular needs of the students. If a position is found in which the student can receive meaningful on-the-job experience, academic credit may be granted. Alternatives might be a directed individual study or further study in business. The special training might be a combination of these or other alternatives decided by the student and the advisor.
THIRD YEAR
Mathematical Sciences 4 4 -
Business (Advanced Program) - - 3
Engineering (Advanced Program) - - 3
Art History Electives 3 3 3
General Electives 9 6 9
TOTAL 16 16 15

FOURTH YEAR
Education (Advanced Program) 3 - -
General Electives (Advanced Program) - 3 3
Art History Electives 3 - -
General Electives 6 10 9
TOTAL 12 13 12

TOTAL QTR. HOURS REQUIRED 180

ART STUDIO CONCENTRATION

A major in art with studio concentration requires a minimum of 60 quarter hours in art courses or approved cognates, of which 15 must be taken in an area of specialization and 12 in art history.

During the first two years students should complete the following 28 quarter hours in art courses:

ART 201, 202, 203, 204
   Design Fundamentals I, II, III, IV (3, 3, 3, 3) 9
   (Select any three)
ART 211, 212   Drawing Fundamentals I, II (3, 3) 6
ART 221, 222, 223
   History of Art I, II, III (3, 3, 3) 9
ART 231   Visual Arts Overview (4) 4
Total 28

The table below illustrates the requirements for a major in art with a studio concentration:

AREAS

<table>
<thead>
<tr>
<th>Environmental Studies Program</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic (54)</td>
<td>69</td>
</tr>
<tr>
<td>Advanced (15)</td>
<td></td>
</tr>
</tbody>
</table>

Major Area Credits
Art (48)
Allied Courses (12)
Electives
Primarily to be selected from upper-level courses outside the Department, with the approval of the student's advisor.

TOTAL QTR. HOURS REQUIRED 180

A senior exhibition acceptable to the art faculty is required.

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

STUDIO CONCENTRATION

FIRST YEAR
Communications (ENG 101, SPE 101 and any literature, speech or writing course) 4 3 3
Social Sciences 3 3 4
Visual Arts Overview (ART 231) 4 - -
Design Fundamentals (ART 201, 202, and 203 or 204) 3 3 3
General Electives 3 3 3
Drawing Fundamentals (ART 211, 212) 3 3 3
Total 14 15 16

SECOND YEAR
Cultural and Historical Foundations 4 4 4
Social Sciences - - -
Art History I, II, III, (ART 221, 222, 223) 3 3 3
Scientific Environment 4 4 4
Studio Art 3 3 3
Total 14 17 14
THIRD YEAR

Studio Art Electives 3 3 3
Mathematical Sciences 4 4 -
Business (Advanced Program) - - 3
Engineering (Advanced Program) - 3 -
Art History (Advanced Level) 3 - -
General Electives 6 6 9

TOTAL 16 16 15

FOURTH YEAR

Education (Advanced Program) 3 - -
General Electives (Advanced Program) - 3 3
Art Studio Electives 3 3 3
Senior Studio and Exhibition - - 3
General Electives 9 9 4

TOTAL 15 15 13

TOTAL QTR. HOURS REQUIRED 180

ART STUDIO CONCENTRATION WITH FILM EMPHASIS

Required Courses for Emphasis in Film:

Q.H.
ART 201, 202 Design Fundamentals I, II 6
ART 211, 212 Drawing Fundamentals I, II 6
ART 221, 222, 223 History of Art I, II, III 9
ART 231 Visual Arts Overview 4
ART 324 History of Photography 3
ART 341, 441 Photography & Advanced Photography 6
ART 204 Film Design 3
ART 342, 442 Cinematography and Advanced Cinematography 8
THA 310 History of Motion Picture 4
THA 424 Principles of Motion Picture 4
RTV 345 Film for Television 4
THA 434 Modern Motion Picture Techniques 4
COM 100 Basic Communications 3

TOTAL 64 Qtr. Hrs.

The table below illustrates the requirements for a major in art with a film emphasis in studio concentration:

AREAS

Environmental Studies Program
  Basic (54)
  Advanced (15)
Major Area Credits
  Art (45)
  Allied Courses (19)
Electives
  Primarily to be selected from upper-level courses outside the department, with the approval of the student's advisor.
TOTAL QTR. HOURS REQUIRED 180

A senior exhibition acceptable to the art faculty is required.

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

STUDIO CONCENTRATION WITH FILM EMPHASIS

FIRST YEAR

F W S

FIRST YEAR

F W S

Communications (ENG 101, SPE 101, and any literature, speech, or writing course) 4 3 3
Social Sciences 3 3 4
Visual Arts Overview (ART 231) 4 - -
Design Fundamentals (ART 201, 202, and 204) 3 3 -
General Electives 3 3 3
Drawing Fundamentals (ART 211, 212) 3 3 3

TOTAL 14 15 16

SECOND YEAR

F W S

Cultural and Historical Foundations 4 4 4
Social Sciences - 3 -
History of Art I, II, III (ART 221, 222, and 223) 3 3 3
Scientific Environment 4 4 4
Film Courses (ART 341, THA 310) 3 - 4
Basic Communications (COM 100) - 3 -

TOTAL 14 17 15
THIRD YEAR  

<table>
<thead>
<tr>
<th>Courses</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film Courses (ART 441, 342, and THA 424)</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mathematical Sciences</td>
<td>4</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Business (Advanced Program)</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Engineering (Advanced Program)</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>History of Photography (ART 324)</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>General Electives</td>
<td>6</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

**TOTAL** 16 17 16

FOURTH YEAR  

<table>
<thead>
<tr>
<th>Courses</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education (Advanced Program)</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>General Electives (Advanced Program)</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Film Courses (ART 442, RTV 345, THA 434)</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>General Electives</td>
<td>9</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

**TOTAL** 16 13 11

**TOTAL QTR. HOURS REQUIRED 180**

MAJOR IN ENGLISH

Chairman: Grove, Bldg. AD 395-G, Phone 275-2212

Faculty: Adicks, Barnes (on leave), Browne, Combs, Donnelly, Fetscher, McCown, Maness (on leave), Omans, Posner, Price, Rickett, Sawyer, Schiffhorst, 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.

REQUIREMENTS

The table below outlines the requirements for a major in English:

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Studies Program</td>
<td>69</td>
</tr>
<tr>
<td>Basic (54) Includes 8 hours of modern language</td>
<td></td>
</tr>
<tr>
<td>Advanced (15)</td>
<td></td>
</tr>
<tr>
<td>Major Area Credits</td>
<td></td>
</tr>
<tr>
<td>English (48)</td>
<td>57</td>
</tr>
<tr>
<td>Modern Language (9)</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>54</td>
</tr>
<tr>
<td>To be selected primarily from upper level courses outside the Department, with the approval of the student's advisor.</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL QTR. HOURS REQUIRED 180**

Students may concentrate in literature or in writing or may combine these in a double major.

A. The major in English with a concentration in literature consists of a minimum of 48 quarter hours above the Freshman level, including the following required courses: ENG 211, 212, 213, 311, 312, 313, 314; 6 hours of Chaucer, Shakespeare or Milton: 430, 431, 432, 433, 434; plus 9 hours of any of the 400-level sequence courses and 12 hours of upper-division electives in English.

LITERATURE CURRICULUM

This is a sample program and not a sequence required of all majors.

FIRST YEAR  

<table>
<thead>
<tr>
<th>Courses</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101, 103, 201</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>SPE 101, HUM 201, MATH 100</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>FRE 101, 102, 103</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>HIST 201, BIOL 103, 105</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

**TOTAL 14 14 15**
SECOND YEAR
ENG 211, 212, 213 3 3 3
ENG 311, 312, 313 3 3 3
GEOL 100-110, PSY 201, 202 4 3 3
FRE 201, 202, 203 3 3 3
ESPE 304, HIST 201, 202 3 4 4
TOTAL 16 16 16

THIRD YEAR
ENG 430, 432, 433 3 3 3
ENG 314, 361, 371 3 3 3
HIST 461, 462, 463 4 4 4
BADM 301, ENGR 480, ESPE 305 3 3 3
ENG 302, 305, 410 3 3 3
TOTAL 16 16 16

FOURTH YEAR
ENG 427, 428, 429 3 3 3
ENG 400, 472, 434 3 3 3
ENG 445, 320, 520 3 4 4
RTV 344, 444, HIST 466 4 4 4
TOTAL 13 14 14

TOTAL QTR. HOURS REQUIRED 180

The major in English with a concentration in writing consists of a minimum of 48 quarter hours, above the Freshman level, including the following: 18 hours selected from ENG 201, 211, 212, 213; 311, 312, 313, 314, or 321; ENG 371 and either 471 or 472; 3 hours of upper-division literature selected in consultation with student's advisor; and 21 hours selected from the following writing courses: ENG 208, 302, 303, 304, 305, 306, 307, 308, 309, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 494. (Note: students may substitute up to 9 hours of writing courses in Communications for an equivalent number of hours of English writing courses). All majors in writing must demonstrate acceptable skills in personal typing by the end of the sophomore year.

WRITING CURRICULUM

This is a sample program and not a sequence required of all majors.

FIRST YEAR
ENG 101, 103, 201 4 3 3
ENG 208, 307 3 3 3
SPE 101, MATH 100, STAT 201 3 4 4
BIOL 103, 105, GEOL 100-110 4 4 4
PSY 201 4 - -
TOTAL 15 14 14

SECOND YEAR
ENG 211, 212, 213 3 3 3
FRE 101, 102, 103 3 3 3
PSY 202, HUM 201, ENG 371 4 4 3
ENG 302, 303, 304 3 3 3
ESPE 304, 305, PCL 201 3 3 4
TOTAL 16 16 16

THIRD YEAR
ENG 321, 410, 313 3 3 3
FRE 201, 202, 203 3 3 3
BADM 301, ENGR 480, ESPE 301 3 3 3
JRN 421, 423, ENG 305 4 4 3
HIST 201, 202, 203 4 4 4
TOTAL 17 17 16

FOURTH YEAR
ENG 472, 520, 460 3 4 3
ENG 404, 405, 406 3 3 3
HIST 311, 312, 313 4 4 4
ENG 431, 432, 433 3 3 3
TOTAL 13 14 13

TOTAL QTR. HOURS REQUIRED 181

THE LANGUAGE REQUIREMENT

Students majoring in English must show proficiency in one modern foreign language by passing a proficiency examination offered by that department, by presenting four years of high school credit in one language, or by one of the following:

A. This plan involves 18 hours of a modern foreign language.

B. This plan allows the student to present the first year of a modern foreign language, consisting of nine quarter
hours; he would then take nine additional quarter hours in English courses beyond the 48-hour requirement, either in literature or writing, at the upper-division level.

C. This plan allows the student to complete two full years of a modern foreign language and then proceed into upper-division literature courses in that language. Up to nine quarter hours of foreign literature could then be substituted for an equivalent number of upper-division English credits.

English majors are encouraged to follow either A or C above but under special circumstances may be permitted to follow B.

TEACHER CERTIFICATION

English majors who wish to be certified must follow the alternate certification program as established by the College of Education:

<table>
<thead>
<tr>
<th>PHASE I</th>
<th>EDTA 307 5 qtr. hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EDTA 206</td>
</tr>
<tr>
<td></td>
<td>or</td>
</tr>
<tr>
<td></td>
<td>PSY 301 3 - 4 qtr. hrs.</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8 - 9 qtr. hrs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHASE II</th>
<th>EDSE 305</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>or</td>
</tr>
<tr>
<td></td>
<td>EDSE 303 3 qtr. hrs.</td>
</tr>
<tr>
<td></td>
<td>EDPL 330 3 qtr. hrs.</td>
</tr>
<tr>
<td></td>
<td>EDSE 340 4 qtr. hrs.</td>
</tr>
<tr>
<td></td>
<td>EDVA 402 3 qtr. hrs.</td>
</tr>
<tr>
<td>TOTAL</td>
<td>13 qtr. hrs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHASE III</th>
<th>EDSE 404 3 qtr. hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EDPL 408 3 qtr. hrs.</td>
</tr>
<tr>
<td></td>
<td>EDPL 430 9 qtr. hrs.</td>
</tr>
<tr>
<td>TOTAL</td>
<td>15 qtr. hrs.</td>
</tr>
<tr>
<td>TOTAL QTR. HRS. REQUIRED</td>
<td>36 or 37</td>
</tr>
</tbody>
</table>

COURSE SEQUENCE

1. The Foundations of Education courses (EDTA 307, EDTA 206 or PSY 301) must be completed before enrolling in Phase II courses.

2. EDSE 404, EDPL 408 and EDPL 430 are the courses for Student Teaching

MAJOR IN FOREIGN LANGUAGES

Chairman: Cervone, Bldg. AD 355-C, Phone 275-2641
Faculty: Bergstrom, DiPierro, Dovhey, Micarelli, Payas, Taylor, Vance

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 100, 200, and certain 300-level courses are required to attend the language laboratory for at least one hour per week.

MAJOR REQUIREMENTS

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 the Department of Foreign Languages. The foreign language major must complete 45 quarter hours in the chosen language beyond the 100 and 200 level. Among these 45 quarter hours the student must take courses numbered 301, 303, 311, 312, 313, and 401. (Course letter prefix is determined by the language.)

A native speaker must substitute a literature course for the advanced conversation course. Moreover, in cases where the native speaker has received advanced education
abroad, he will not be permitted to take the advanced conversation course (303) for the fulfillment of his major requirements but must substitute another language course chosen with his advisor.

COMBINED MAJORS:

For a major in two foreign languages, a student must take the courses numbered 301, 303, 311, 312, 313, and 401 in both languages plus an additional nineteen credits in his first language and an additional ten credits in his second language.

A native speaker must substitute a literature course for the advanced conversation (303) course. Moreover, in cases where the native speaker has received advanced education abroad he will not be permitted to take the advanced composition course (301) for the fulfillment of his major requirements but must substitute another language course chosen with his advisor.

PLACEMENT OF STUDENTS IN LANGUAGE CLASSES

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.

If a student feels that his high school preparation was inadequate, he may be allowed to drop back one quarter with the permission of a member of the Foreign Language Department. If a student has studied a language in high school for two years or less, five or more years prior to the time of enrollment in a language course, he may be allowed to disregard his high school language training and begin anew.

The table below illustrates the requirements for a major in foreign languages:

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGLE MAJOR</td>
<td></td>
</tr>
<tr>
<td>Environmental Studies Program</td>
<td>69</td>
</tr>
<tr>
<td>Basic (54)</td>
<td></td>
</tr>
<tr>
<td>Advanced (15)</td>
<td></td>
</tr>
<tr>
<td>Major Area Credits</td>
<td>67</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>Primarily to be selected from upper level courses outside the Department, with the approval of the student’s advisor.</td>
<td>44</td>
</tr>
<tr>
<td>TOTAL QTR. HOURS REQUIRED</td>
<td>180</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMBINED MAJORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Studies Program</td>
</tr>
<tr>
<td>Basic (54)</td>
</tr>
<tr>
<td>Advanced (15)</td>
</tr>
<tr>
<td>Major Area Credits</td>
</tr>
<tr>
<td>First Language (38)</td>
</tr>
<tr>
<td>Second Language (29)</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>Primarily to be selected from upper level courses outside the Department, with the approval of the student’s advisor.</td>
</tr>
<tr>
<td>TOTAL QTR. HOURS REQUIRED</td>
</tr>
</tbody>
</table>

Whether the student chooses to major in one or two foreign languages, or plans a foreign language-education major, he and his adviser should organize his elective courses in the areas of literature (foreign or otherwise) and related disciplines (such as art, history, humanities, music, philosophy).

FOREIGN LANGUAGE CURRICULUM

The following is a sample program and not necessarily a rigid sequence required of all language majors.
MAJOR IN HISTORY

Chairman: Shofner, Bldg. ADM 250, Phone 275-2224
Faculty: Crepeau, Evans, Greenhaw, Kallina, Pauley, Wehr

Students majoring in history must complete 48 quarter hours in history courses. The required courses are:

HIST 201, 202, 203
   Western Culture and Civilization (4, 4, 4) 12
HIST 311, 312, 313
   American History I, II, III (4, 4, 4) 12

An additional twenty-four quarter hours credit in junior or senior level courses including at least eight quarter hours from each of the following three areas: (1) U.S. history, (2) European history, and (3) Latin American or Asian history.

History majors are expected to have a reading knowledge of a foreign language. This requirement may be met by demonstrating proficiency in an examination administered by the Foreign Language Department or by completing the appropriate course or courses.

The table below illustrates the requirements for a major in History:

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Studies Program</td>
<td>69</td>
</tr>
<tr>
<td>Basic (54)</td>
<td></td>
</tr>
<tr>
<td>Advanced (15)</td>
<td></td>
</tr>
<tr>
<td>Major Area Credits</td>
<td>48</td>
</tr>
<tr>
<td>History (48)</td>
<td></td>
</tr>
<tr>
<td>Foreign Language (18)</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>45</td>
</tr>
<tr>
<td>To be selected with the approval of the student’s advisor.</td>
<td></td>
</tr>
<tr>
<td>TOTAL QTR. HOURS REQUIRED</td>
<td>180</td>
</tr>
</tbody>
</table>

MAJOR IN HISTORY (PRE-LAW)

The (Pre-Law) History major is designed for students interested in preparing for admission to law school. In keeping with the expressed preference of prominent law schools for students with broad liberal arts backgrounds, the pre-law history student is required to complete courses in the humanistic disciplines in addition to those required for the History major. The table below illustrates the requirements for a Pre-Law History major:

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Studies Program</td>
<td>69</td>
</tr>
<tr>
<td>Basic (54)</td>
<td></td>
</tr>
<tr>
<td>Advanced (15)</td>
<td></td>
</tr>
<tr>
<td>Major Area Credits</td>
<td>48</td>
</tr>
<tr>
<td>History (48)</td>
<td></td>
</tr>
</tbody>
</table>
Same as History major

Additional courses are:
- U.S. Constitutional History (4)
- British Constitutional History (4)
- Logic (PHI 205) (4)
- Advanced Composition (ENG 307 or 400) (3)
- American or British Literature (adv) (3)
- European or World Literature (adv) (3)
- Art History (ART 221, 222, or 223) (3)
- Enjoyment of Music (MUS 199) (4)
- History of Motion Picture, Theatre or Drama (THA 310, 331-333, 341-343) (3-4)
- Advanced Speech (SPE 360 or 362) (4)

TOTAL 35-36

Electives
To be selected with the approval of the student's advisor.

TOTAL QTR. HOURS REQUIRED 180-81

HISTORY CURRICULUM

The following is a sample program and not necessarily a rigid sequence required of all History majors.

FIRST YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Environment</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Communications (ENG 101, SPE 101, ENG 103)</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>HISTORY (HIST 201, 202, 203)</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language (101, 102, 103)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>15</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

SECOND YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural &amp; Historical Foundations</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mathematical Sciences</td>
<td>4</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>-</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>History (HIST 311, 312, 313)</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language (201, 202, 203)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>General Electives</td>
<td>3</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>18</td>
<td>17</td>
<td>14</td>
</tr>
</tbody>
</table>

THIRD YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>European History</td>
<td>4</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Western Hemisphere (History)</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Business (Advanced Program)</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Engineering (Advanced Program)</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>General Electives</td>
<td>8</td>
<td>8</td>
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<tr>
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FOURTH YEAR

<table>
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<th>Course</th>
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<tbody>
<tr>
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<tr>
<td>General Electives (Adv. Program)</td>
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TOTAL QTR. HOURS REQUIRED 180

HISTORY PRE-LAW CURRICULUM

The following is a sample program and not necessarily a rigid sequence required of all History (Pre-Law) majors.

FIRST YEAR

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Scientific Environment</td>
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<td>4</td>
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</tr>
<tr>
<td>Communications (ENG 101, 103 SPE 101)</td>
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<tr>
<td>HISTORY (HIST 201, 202, 203)</td>
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<tr>
<td>Mathematical Environment (including PHI 205)</td>
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<td>-</td>
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<tr>
<td>General Electives</td>
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<td>-</td>
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<td><strong>TOTAL</strong></td>
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SECOND YEAR

<table>
<thead>
<tr>
<th>Course</th>
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<th>S</th>
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<tbody>
<tr>
<td>History (U.S.)</td>
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<tr>
<td>Western Humanities Survey (HUM 201)</td>
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<tr>
<td>Social Sciences</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Art History (ART 221, 222, or 223)</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Music Appreciation (MUS 199)</td>
<td>-</td>
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<tr>
<td>General Electives</td>
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<tr>
<td><strong>TOTAL</strong></td>
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<td>14</td>
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</tr>
</tbody>
</table>
THIRD YEAR

European History 4 4 -
British Constitutional History 4 - -
Advanced Composition (ENG 307, 310 or 400) 3 - -
Advanced American or British Literature - 3 -
Advanced Speech (SPE 360 or 362) - - 4
Advanced European or World Lit. - - 3
Advanced Theatre (THA 310, 331-333, 341-343) - - 4
Western Hemisphere History - 4 4
Business (Advanced Program) 3 - -
Engineering (Advanced Program) - 3 -

TOTAL 14 14 15

FOURTH YEAR

Education (Advanced Program) 3 - -
General Electives (Advanced Program) - 3 3
History Electives 4 4 -
American Constitutional History 4 - -
General Electives 6 8 12

TOTAL 17 15 15

TOTAL QTR. HOURS REQUIRED 180

MAJOR IN HUMANITIES

Chairman: Flick, Bldg. LR 226, Phone 275-2273
Faculty: Fetscher, Forrest, Greene, Hotaling, Jones, Kassim, Levensohn, Riley, Riser

Since humanities is an interdisciplinary study, the major may be broadly based, or it may be concentrated to some extent in an area of primary interest, as indicated below. In each case, however, the following apply:

A. Two years of a foreign language (or equivalent) are required.

B. General electives should be used either to acquire a second major, to take education courses needed for teacher certification, or to gain a balanced background in supporting areas such as art, history, literature, music, philosophy, religion, and theatre.

C. Each student should discuss his program with a humanities advisor. Any exception to stated requirements must have the recommendation of the adviser and approval of the Department Chairman.

Broadly Based Major (Recommended for students who plan to teach humanities or who seek a sound liberal arts education).

HUM 300 - 310 (Mind and Art Series) 24
300 level Humanities courses above 310 12
400 level Humanities courses 12

Total 48

Concentration in Fine Arts

HUM 300 - 310 and 371 16
300 level Humanities courses above 310 8
HUM 421 and 441 8
PHI 341 4
Courses in acting, creative writing, applied art or applied music 12

Total 48

Concentration in Intellectual History

HUM 301 or 304 4
HUM 305 or 306 4
HUM 307 or 308 4
HUM 309 or 310 4
Other HUM 300 - 310 not selected above 8
HUM 311 - 318 4
HUM 461 and 494 8
Electives in HUM, PHI, and REL 12
HIST 480 4

Total 52
Concentration in Religion
HUM & REL 300, 315, 317, 318 (any 3) 12
REL 321, 441, 471, 473, 477 (any 3) 12
HUM 305, 307, 415, 425, 461 (any 2) 8
PHI 405 4
Electives in HUM, PHI, and REL (to include
REL 491 and/or 494) 12
SOC 307 or 349 4
Total 52

HUMANITIES CURRICULUM

The following is not a rigid sequence required of all majors in
humanities but is suggested as a means of helping students
plan their programs.

FIRST YEAR
Communications (ENG 101, SPE 101,
ENG 103) 4 3 3
Foreign Language (101, 102, 103) 3 3 3
Social Sciences 3 3 3
Mathematical Sciences
(mathematics, logic) 4 4 -
Cultural & Historical Foundations
(HUM 201) 4
General Electives (art, music,
theatre) 3 3
TOTAL 14 16 16

SECOND YEAR
Cultural & Historical Foundations
(history, PHI 221) 4 4 -
Foreign Language (201, 202, 203) 3 3 3
Scientific Environment 4 4 4
Humanities (300 level)* 4 4 8
TOTAL 15 15 15

THIRD YEAR
Advanced ESP (business,
engineering, education) 3 3 3
Advanced ESP (upper level electives
outside college) 3 3 -
Humanities (or philosophy or
religion)* 4 4 8
General Electives (or
second major)** 4 4 4
TOTAL 14 14 15

FOURTH YEAR
Humanities (or
Philosophy or religion)* 8 4 4
General Electives (or second
major)** 8 11 11
TOTAL 16 15 15

TOTAL QTR. HOURS REQUIRED 180

MAJOR IN MUSIC

Chairman: Sperry, Bldg. VC 133, Phone 275-2867
Faculty: Boyer, Schoenbohm, Szabo, Szomoru, Whisler,
Wolf

The degree of Bachelor of Arts with a major in music is
designed for the study of music in a liberal arts curriculum.
To insure synthesis of the many musical elements into a
comprehensive whole, the student is assigned to progressively
organized sequences in Musicianship and Principal
Performance. The student's initial placement in these
fundamental courses is made by the music faculty following
a musicianship test and performance audition to be
scheduled by the student before his first registration.
Subsequent progress is determined by achievement tests and
performance juries administered at specific points in his
musical development. In general, the student's rate of
progress in these basic sequences depends upon his own
initiative.

The Musicianship courses are designed to enhance the
student's writing, analysis, and performance skills. This
integrated systematic study of music aids in the development

* Choices depend on concentration.
** Check concentration for courses required outside Humanities
Department.
of the student’s skills of sight singing, keyboard harmony, score reading, conducting, aural analysis, visual analysis, part writing, counterpoint, instrumentation, and composition. Emphasis is placed on writing and performance of music. The Musicianship courses meet every day for one hour plus one additional hour each week in Music Laboratory.

The Performance courses include experience in solo and ensemble (major performing organizations and chamber music ensembles). Faculty approved junior and senior recitals are included in the requirements for these courses.

The Piano Proficiency Examination must be completed satisfactorily before the student can be admitted to MUS 404 in his major performing medium. Enrollment in Music Forum is required each quarter for students enrolled in Principal Performance.

The table below illustrates the requirements for a major in music:

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Q.H.</th>
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<tbody>
<tr>
<td>Environmental Studies Program</td>
<td></td>
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<tr>
<td>Basic (54)</td>
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<tr>
<td>Advanced (15)</td>
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<tr>
<td>Major Area Credits</td>
<td>96</td>
</tr>
<tr>
<td>Music Forum (0) twelve quarters</td>
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</tr>
<tr>
<td>Musicianship (36)</td>
<td></td>
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<tr>
<td>Principal Performance (48)</td>
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<tr>
<td>may not include more than 12 quarter hours in each of MUS 204, 304, or 404. At the advisor’s discretion, this may include up to 8 hours in Secondary Performance in a musical medium (or media) other than the student’s major.</td>
<td></td>
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<tr>
<td>Directed Experience (6)</td>
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<tr>
<td>Independent Study (6)</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Primarily to be selected from upper level courses outside the Department, with the approval of the student’s advisor.</td>
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| TOTAL QTR. HOURS REQUIRED | 180 |

**MUSIC CURRICULUM**

The following is a sample program and not necessarily a rigid sequence required of all Music majors.

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
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<tbody>
<tr>
<td>Music Forum (MUS 100)</td>
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<tr>
<td>Musicianship (MUS 201, 202, 203)</td>
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<tr>
<td>Performance (MUS 204)</td>
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<td>Communications (ENG 101, SPE 101, ENG 103)</td>
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<tr>
<td>Scientific Environment</td>
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<tr>
<td>Cultural &amp; Historical Foundations</td>
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<td><strong>TOTAL</strong></td>
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<tr>
<td>Musicianship (MUS 301, 302, 303)</td>
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<td>Performance (MUS 304)</td>
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<td>Humanities (HUM 201)</td>
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<td>Mathematical Sciences</td>
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<tr>
<td>Music Forum (MUS 100)</td>
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<td>Musicianship (MUS 401, 402, 403)</td>
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<td>Business</td>
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<td>Cultural &amp; Historical Foundations</td>
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<tr>
<td>Electives</td>
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<td>Performance (MUS 484)</td>
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<td>Independent Study (MUS 494)</td>
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<tr>
<td>Engineering</td>
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</table>

**TOTAL** | 15 | 14 | 15
A major in philosophy requires 48 quarter hours, distributed as indicated below. Two years of a foreign language (or equivalent) are also required. A student seeking to major in philosophy should inquire in the Department of Humanities and ask to be assigned to a philosophy advisor who will help him plan his program. Any exception to the stated requirements must have the recommendation of the advisor and the approval of the chairman of the Humanities department. It should be noted that successful completion of at least one other course in philosophy is prerequisite to enrollment in any 400 level philosophy course. The major should include the following courses in philosophy and humanities:

PHI 105 or 205 (logic) 4
PHI 221 (Intro. to Philosophy) 4
PHI 331 (Ethics) 4
HUM 301, 308 and PHI 461 (History of Philosophy) 12
PHI 312 (Existentialism) 4
PHI 314 (Problems in Contemporary Philosophy) 4
PHI 494 (Independent Study) 4
Electives chosen with the help of the advisor from courses relevant to the major 12
TOTAL 48

PHILOSOPHY CURRICULUM

The following is not a rigid sequence required of all majors in philosophy but is suggested as a means of helping students plan their programs.

FIRST YEAR
Communications (ENG 101, SPE 101, ENG 103) F W S
Foreign Language (101, 102, 103) 3 3 3
Social Sciences 3 3 3
Mathematical Sciences (mathematics, logic) 4 4 -
Cultural & Historical Foundations (HUM 201) 4
General Electives (art, music, theatre) 3 3
TOTAL 14 16 16

SECOND YEAR
Cultural & Historical Foundations (history, PHI 221) 4 4 -
Foreign Language (201, 202, 203) 3 3 3
Scientific Environment 4 4 4
Philosophy or Humanities (300 level) 4 4 8
TOTAL 15 15 15

THIRD YEAR
Advanced ESP (business, engineering, education) 3 3 3
Advanced ESP (upper level electives outside college) 3 3 -
Philosophy 4 4 8
General Electives (or second major) 4 4 4
TOTAL 14 14 15

FOURTH YEAR
Philosophy (or humanities or religion) 8
General Electives (or second major) 8 15 15
TOTAL 16 15 15

TOTAL QTR. HOURS REQUIRED 180
MAJOR IN THEATRE

Chairman: (Acting) Combs, Bldg. AD 252, Phone 275-2600
Faculty: Mays, Smith

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 consists of four programs of study, one of which will be pursued by the student upon consultation with his advisor and after the basic program has been completed.

The four programs are:
A. Theatre History and Criticism
B. Technical Theatre and Design
C. Acting and Directing
D. Film

The student majoring in Theatre is required to choose the program he intends to pursue by the end of his sophomore year.

The Basic Program. There are three courses that are required of all students majoring in Theatre. Transfer students should be prepared to show equivalent courses, or the requirement will apply to them also. The three required courses are:

THA 180: Study of Theatre and Drama (3)
THA 210: Cinema Survey (4)
THA 290: Theatre Practicum (2, 2)

Upon the successful completion of these courses the student will consult with his advisor concerning the individual program in which he is most interested and for which he shows the greatest aptitude.

THE MAJOR PROGRAMS

Theatre History and Criticism. The following courses are required for the completion of the "A" program:

AREAS
Environmental Studies Program
Basic (54)
Advanced (15)

Major Area Credits
Basic Program (Theatre) (11)
History of the Motion Picture (THA 310) (4)
History of the Theatre (THA 331-333) (9)
Development of Drama (THA 341-343) (12)
Dramatic Theory (THA 421) (3)
Contemporary Theatre/Drama (THA 423) (3)
Dramatic Criticism (THA 425) (3)
Modern Theatrical Forms (THA 431) (3)
Modern Currents in the Theatre (THA 441) (4)
American Drama (THA 486-487) (6)

Electives
Primarily to be selected from upper level courses outside the department, with the approval of the student's advisor.

TOTAL QTR. HOURS REQUIRED
180

Technical Theatre and Design. The following courses are required for the completion of the "B" program:

AREAS
Environmental Studies Program
Basic (54)
Advanced (15)

Major Area Credits
Basic Program (11)
Technical Theatre Production (THA 240) (4)
Stage Carpentry (THA 241) (4)
Stage Properties (THA 242) (4)
Costumes: History and Theory (THA 350) (4)
Costume Design and Makeup (THA 351) (4)
Scene Design (THA 381) (4)
Stage Lighting (THA 382) (4)
Theatre Practicum II (THA 390) (4)
Modern Currents in the Theatre (THA 441) (4)
Advanced Scene Desitin (THA 483) (4)
Special Topics (THA 491) (5)

Electives
Primarily to be selected from upper level courses outside the department, with the approval of the student’s advisor.

TOTAL QTR. HOURS REQUIRED 180

Acting and Directing. The following courses are required for the completion of the “C” program.

AREAS

Environmental Studies Program
Basic (54)
Advanced (15)

Major Area Credits
Basic Program (11)
Technical Theatre Production (THA 240) (4)
Stage Properties (THA 242) (4)
Acting (THA 280) (4)
History of the Motion Picture (THA 310) (4)
Costumes: History and Theory (THA 350) (4)
Costume Design and Makeup (THA 351) (4)
Modern Stage Movement (THA 375) (4)
Directing I (THA 380) (3)
Scene Design I (THA 381) (4)
High School Play Directing (THA 422) (3)
Directing II (THA 480) (3)
Acting II (THA 481) (3)
Creative Dramatics/Children’s Theatre (THA 488) (3)

Electives
Primarily to be selected from upper level courses outside the department, with the approval of the student’s advisor.

TOTAL QTR. HOURS REQUIRED 180

Film. The following courses are required for the completion of the “D” program.

AREAS

Environmental Studies Program
Basic (54)
Advanced (15)

Major Area Credits
Study of Theatre and Drama (THA 180) (3)
Cinema Survey (THA 210) (4)
Theatre Practicum (THA 290) (4-6)
History of Motion Picture (THA 310) (4)
Principles of Motion Picture Art (THA 424) (4)
Modern Motion Picture Techniques (THA 434) (4)
Directing I, II (THA 380, 480) (6)
or
Scene Design, Stage Lighting (THA 381, 382) (8)
Photography (ART 341) (3)
Basic Communications (COM 100) (3)
Film for TV (RTV 345) (4)

Additional courses selected in THA, ART, or RTV in consultation with advisor. Certain courses may be specified to fulfill environmental studies requirements.

Electives

TOTAL QTR. HOURS REQUIRED 180

THEATRE CURRICULUM

The following is a sample program and not necessarily a rigid
sequence required of all Theatre majors. It is designed for the student electing the “A” program (Theatre History and Criticism) in the Theatre Major. Students in the other programs will have similar curricula, with courses in their major reflecting their particular interests.

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
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<tbody>
<tr>
<td>ENG 101, SPE 101</td>
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<td>PSY 201, 202</td>
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<td>3</td>
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<td>BIOL 100</td>
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</tr>
<tr>
<td>COM 100</td>
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<td>PCL 201</td>
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</tr>
<tr>
<td>HUM 201</td>
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<tr>
<td>THA 290</td>
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<td>THA 180</td>
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<td>THA 230</td>
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<td>MATH 100</td>
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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>PHI 205</td>
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<td>HUM 301</td>
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<td>HIST (any)</td>
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<td>ART 231</td>
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<td>THA 210</td>
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<td>THA 290</td>
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<td>THA 310</td>
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<td>THA 331, 332, 333</td>
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**TOTAL QTR. HOURS REQUIRED** 180
COLLEGE OF NATURAL SCIENCES

• UNDERGRADUATE PROGRAMS
  BIOLOGICAL SCIENCE
    BIOLOGY
    BIOTECHNOLOGY
    BOTANY
    FRESH WATER ECOLOGY
    MICROBIOLOGY
    ZOOLOGY
  CHEMISTRY
  COMPUTER SCIENCE
  INHALATION THERAPY
  MATHEMATICS
  MEDICAL RECORD ADMINISTRATION
  MEDICAL TECHNOLOGY
  PHYSICS
  PREPROFESSIONAL
    PREDENTAL
    PREMEDICAL
    PRENURSING
    PREOPTOMETRY
    PREPHARMACY
    PREVETERINARY
  STATISTICS

• GRADUATE PROGRAMS
  BIOLOGICAL SCIENCE
  COMPUTER SCIENCE
COLLEGE OF NATURAL SCIENCES

It is the purpose of the College of Natural Sciences to assist all of its students to develop their individual capabilities to the fullest. The College is concerned not only with the intellectual development of its students, but also with their proper physical, emotional, social and spiritual growth. To this end, the College will provide a broad liberal education through the Environmental Studies Program as well as concentrated study in specialized fields.

Specific objectives of the College of Natural Sciences are:

A. To see that the student obtains an education which will:
   1. Develop in him a sense of personal and social responsibility;
   2. Aid him in developing those qualities of mind and character necessary to intellectual advancement and to productive membership in society;
   3. Give him an awareness of the more important achievements of mankind;
   4. Arouse his intellectual interests;
   5. Give him an increased appreciation of the values expressed in morality, religion, the sciences and the fine arts;
   6. Bring about a progressive strengthening and refining of the powers of reasoning and judgment; and
   7. Stimulate him to continue to seek knowledge throughout his adult life.

B. To provide the student, through its programs of concentrated study, with the opportunity to achieve competence in a scientific or technical profession of his choosing.

C. To help develop the student’s character and provide him with the motivation to use his knowledge wisely.

In order to achieve the above objectives, the College of Natural Sciences will:

A. Participate in the Environmental Studies Program to provide all students in the University with the opportunity to obtain some fundamental understanding in the sciences so that they may deal with the complexities of modern life;

B. Provide undergraduate and graduate instruction in the various subject matter fields which constitute the biological, mathematical, physical and health related sciences;

C. Encourage and support research in all subject matter fields which are included in the College of Natural Sciences; and

D. Provide training in preparation for later admission to a professional school of dentistry, medicine, nursing, optometry, pharmacy, or veterinary medicine.

The College of Natural Sciences will cooperate with the Colleges of Business Administration, Humanities and Fine Arts, and Social Sciences by making available to their students general and specialized courses in the mathematical and natural sciences; with the College of Engineering by providing instruction in those basic fields that constitute the scientific framework upon which its professional programs are built; and with the College of Education in the preparation of teachers by providing extensive and intensive training in the biological, mathematical and physical sciences.

MAJOR STUDY PROGRAMS AND GENERAL REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE

Each degree program in the College of Natural Sciences must contain:
(1) at least 180 credits including the Environmental Studies Program, requirements of the major department, and electives;

(2) ENG 310, Professional Report Writing II;

(3) at least one year of mathematical sciences, one year of biological sciences, and one year of physical sciences.

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, Biotechnology, Botany, Fresh Water Ecology, Microbiology and Zoology), Chemistry, Computer Science, Inhalation Therapy, Mathematics, Medical Record Administration, Medical Technology, Physics and Statistics.

Preprofessional programs are also available to prepare students for further study in schools of dentistry, medicine, veterinary medicine, and other areas. These programs are administered directly through the Dean’s office by a preprofessional coordinator with the help of a committee appointed by the Dean.

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.

GRADUATE PROGRAMS

Graduate programs leading to a Master of Science degree are available in Biological Science and Computer Science. Details concerning these programs may be found under the Departments of Biological Sciences and Mathematical Sciences, respectively.

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: TBA Bldg. LR 227, Phone 275-2741
Faculty: Butler, Johns, Laird, Perrin, Rogers, Scott

The Department of Allied Health Sciences offers the Bachelor of Science degree in three fields:

INHALATION THERAPY – the treatment, management, control and care of patients with deficiencies and abnormalities associated with the breathing process, through the therapeutic use of such aids as medical gases, oxygen administering apparatus, aerosols, chest physical therapy, cardiopulmonary resuscitation and mechanical airways.

MEDICAL RECORD ADMINISTRATION – the development, maintenance and administration of systems of storage, retrieval and release of patient health information.

MEDICAL TECHNOLOGY – the identification of the nature and causes of disease through the use of precision instruments in the examination and analysis of samples of body fluids and tissues.

The first two years of study in allied health sciences constitute a specified preprofessional program of basic
education similar, but not identical, for all programs. The student then completes the professional phase of the program of his choice. Admission to study in this department does not constitute admission to the clinical (professional) year(s). Such admission is dependent upon the student’s performance prior to this stage in his education and the availability of openings in the clinical facility. Separate application must be made to the clinical portion of the program at least six months, but no more than one year, prior to the time the student is ready for admission.

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 disease and disability is on a scale and of a quality never before envisioned. However, this potential can only be realized with the support of skilled professional personnel in the specialized health fields.

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 degree requirements in each of the programs offered by the Department of Allied Health Sciences are summarized below:

<table>
<thead>
<tr>
<th>AREA</th>
<th>Inhalation Therapy</th>
<th>Med Rec Admin</th>
<th>Med Tech</th>
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</thead>
<tbody>
<tr>
<td>Environmental Studies</td>
<td>69</td>
<td>69</td>
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<tr>
<td>Major (inc. College Requirements)</td>
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<td>101</td>
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</tr>
<tr>
<td>TOTAL</td>
<td>187</td>
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</table>

Required courses leading to the Bachelor of Science degree in Inhalation Therapy, Medical Record Administration and Medical Technology are identified by course number in the curricula which follow. (NOTE: The curriculum shown under Medical Technology, Program 2, is for those students who desire to take their clinical training entirely during the fourth year. Following completion of the three years of study as outlined, the student must satisfactorily complete one full calendar year of study (46 quarter credit hours) with a grade point average of “C” or better at a hospital having a medical technology program approved by Florida Technological University, The Council of Medical Education of the American Medical Association, the American Society of Clinical Pathologists and the American Society of Medical Technologists. Approved hospitals in the Orlando area are: Florida Hospital, Orange Memorial Hospital and Winter Park Memorial Hospital.

The program in Inhalation Therapy is approved by the Council on Medical Education of the American Medical Association in collaboration with the American Association for Inhalation Therapy, the American College of Chest Physicians, and the American Society of Anesthesiologists. The program in Medical Record Administration is approved by the Council on Medical Education of the American Medical Association in cooperation with the Education and Registration Committee of the American Medical Record Association.
SUGGESTED PROGRAM FOR INHALATION THERAPY

FIRST YEAR

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<thead>
<tr>
<th>Course</th>
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<tr>
<td>Allied Health Sciences (AHS 100)</td>
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<tr>
<td>Biological Sciences (BIOL 100; ZOOL 100)</td>
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<tr>
<td>Chemistry (CHEM 111, 112, 113) (CHEM 264, 115)</td>
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<tr>
<td>Communications (ENG 101; SPE 101)</td>
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<tr>
<td>Mathematics</td>
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<td>Social Sciences</td>
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SECOND YEAR

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<td>Biological Sciences (ZOOL 324)</td>
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<td>(ZOOL 334; MICR 200)</td>
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<td>Cultural and Historical Foundations</td>
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<td>Physics (PHYS 201, 202, 380)</td>
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THIRD YEAR

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<td>Communications (ENG 310)</td>
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1. To be selected in consultation with the student's advisor from courses numbered MATH 106 or higher.

FOURTH YEAR

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TOTAL QTR. HOURS REQUIRED: 187

SUGGESTED PROGRAM FOR MEDICAL RECORD ADMINISTRATION

FIRST YEAR

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SECOND YEAR

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THIRD YEAR

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<td>Management (MGMT 301, 364)</td>
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FOURTH YEAR

Allied Health Sciences (AHS 340, 341, 375)  
Computer Science (COMP 484)  
Education  
Medical Record Administration (MRA 403, 420, 421)  
(MRA 472, 473, 474)  
(MRA 404)  
Electives (Advanced Environmental Studies)

TOTAL 13 14 14

TOTAL QTR. HOURS REQUIRED 187

SUGGESTED PROGRAM FOR MEDICAL TECHNOLOGY

Program 1. Four years at Florida Technological University in which clinical training starts in the third year at a cooperating hospital. Students should note that this program is not currently available; however, it is planned for implementation in the future.

Program 2. Three years at Florida Technological University plus one calendar year at an approved hospital school of medical technology.

FIRST YEAR

Allied Health Sciences (AHS 100)  
Biological Sciences (BIOL 100; ZOOL 100)  
Chemistry (CHEM 111, 112, 113)  
(CHEM 264, 265)  
Communications (SPE 101; ENG 101)  
Computer Science (COMP 102)  
Mathematics (MATH 106)  
Social Sciences

TOTAL 15 16 14

SECOND YEAR

Biological Sciences (MICR 200; ZOOL 334)  
(ZOOL 335, MICR 300)  
Chemistry (CHEM 251, 351, 352)  
Cultural and Historical Foundations  
Physics (PHYS 201, 202, 380)  
Social Sciences

TOTAL 16 15 15

THIRD YEAR

Biological Sciences (MICR 320, 381)  
Business  
Chemistry (CHEM 355)  
Communications (ENG 310)  
Education  
Engineering  
Statistics (STAT 201)  
Electives (Advanced Environmental Studies)  
Restricted Electives  
Electives

TOTAL 18 16 16

FOURTH YEAR

Approved Hospital Program of 46 quarter credit hours:

MEDT 440  
MEDT 442  
MEDT 443  
MEDT 444  
MEDT 445  
MEDT 446  
MEDT 447  
MEDT 448  
MEDT 449

TOTAL 46

TOTAL QTR. HOURS REQUIRED 187

1. To be selected in consultation with the student's adviser from the Allied Health, Biological, Mathematical and Physical Sciences.
DEPARTMENT OF BIOLOGICAL SCIENCES

Chairman: Miller Bldg. SCI 232, Phone 275-2141
Faculty: Bullock, Charba, Ehrhart, Ellis, Gennaro, Koevenig, Kuhn, Mann, Mickus, Osborne, Price, Reynolds, Snelson, Stout, Sweeney, Taylor, Vander Molen, Vickers, White, Whittier, Wodzinski.

The Department of Biological Sciences offers a Bachelor of Science in Biological Science with options in biology, biotechnology, botany, fresh water ecology, 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 broad and varied background; or biotechnology, for those students seeking scientific careers based on application of biological knowledge; or botany, the study of plants; or fresh water ecology, 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 adviser, a specialty field, such as physiology, may be emphasized in one or more of the options outlined above.

BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCE

The degree requirements in each of the options offered by the Department of Biological Sciences are summarized as follows:

<table>
<thead>
<tr>
<th>OPTION</th>
<th>Env. Studies</th>
<th>Major</th>
<th>Electives</th>
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<tbody>
<tr>
<td>Biology</td>
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<tr>
<td>Biotechnology</td>
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<tr>
<td>Botany</td>
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TOTAL QTR. HOURS REQUIRED IN ALL OPTIONS: 187

Required courses leading to the Bachelor of Science degree in Biological Science are identified by the course number in the following curricula.

SUGGESTED PROGRAM FOR BIOLOGYgetOption

FIRST YEAR

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TOTAL 16 15 16

1 including College requirements

2 Students expecting to enter graduate school should seriously consider taking at least three quarters of a foreign language. In addition, students planning on graduate study in the biological sciences should take additional courses in statistics and chemistry.

3 To be selected in consultation with the student's adviser from courses numbered MATH 106 or higher.
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**SUGGESTED PROGRAM FOR BIOTECHNOLOGY OPTION**

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1 To be selected in consultation with and with approval of the student's advisor.

2 To be selected in consultation with the student's adviser from courses numbered MATH 106 or higher.

3 To be selected in consultation with and with approval of the student's advisor.
SUGGESTED PROGRAM FOR BOTANY OPTION

**FIRST YEAR**

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**FOURTH YEAR**

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**SUGGESTED PROGRAM FOR FRESH WATER ECOLOGY OPTION**

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1 Students expecting to enter graduate school should seriously consider taking at least three quarters of a foreign language. In addition, students planning on graduate study in the biological sciences should take additional courses in statistics and chemistry.

2 To be selected in consultation with the student's advisor from courses numbered MATH 106 or higher.

3 To be selected in consultation and with approval of the student's advisor.
THIRD YEAR  
Biological Sciences (BIOL 350)  
(ZOOL 445)  
(BOT 441; ZOOL 442)  
Communications (ENG 310)  
Business  
Engineering  
Education  
Social Sciences  
Cultural and Historical Foundations  
Computer Sciences (COMP 102)  
Electives  

TOTAL HOURS REQUIRED  

FOURTH YEAR  
Biological Sciences (BIOL 450, 451)  
(Electives from biological sciences or CHEM)  
Social Sciences  
Electives (Advanced Environmental Studies)  
Electives  

TOTAL HOURS REQUIRED  

TOTAL QTR. HOURS REQUIRED  

SUGGESTED PROGRAM FOR MICROBIOLOGY OPTION  

FIRST YEAR  
Biological Sciences (BIOL 100)  
(ZOOL 100; BOT 100)  
Chemistry (CHEM 261, 262, 263)  
(CHEM 264, 251)  
Communications (ENG 101; SPE 101)  

Electives  

TOTAL HOURS REQUIRED  

SECOND YEAR  
Biological Sciences (MICR 200)  
(BIOL 360; BIOL 322 or MICR 430)  
Chemistry (CHEM 321, 322, 323)  
(CHEM 324)  
Cultural and Historical Foundations  
Physics (PHYS 201, 202, 380)  
Statistics (STAT 301)  

TOTAL HOURS REQUIRED  

THIRD YEAR  
Biological Sciences (MICR 300, 451)  
(BIOL 350; MICR 320)  
Chemistry (CHEM 441, 442)  
(CHEM 351, 352)  
Business  
Engineering  
Education  
Social Sciences  
Cultural and Historical Foundations  

TOTAL HOURS REQUIRED  

FOURTH YEAR  
Biological Sciences (MICR 381, 382)  
(MICR 430)  
(Electives from biological sciences or CHEM)  
Communications (ENG 310)  
Social Sciences  
Electives (Advanced Environmental Studies)  
Electives  

TOTAL HOURS REQUIRED  

1 To be selected in consultation with and with approval of the student's advisor.  
2 It is recommended that the student consider taking ENGR 361 as one of these electives.  
3 Students expecting to enter graduate school should seriously consider taking at least three quarters of a foreign language. In addition, students planning on graduate study in the biological sciences should take additional courses in statistics and chemistry.  
4 To be selected in consultation with the student's adviser from courses numbered MATH 106 or higher.
SUGGESTED PROGRAM FOR ZOOLOGY OPTION 1

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**SECOND YEAR**

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**THIRD YEAR**

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1 Students expecting to enter graduate school should seriously consider taking at least three quarter of a foreign language. In addition, students planning on graduate study in the biological sciences should take additional courses in statistics and chemistry.

2 To be selected in consultation with the student’s advisor from courses numbered MATH 106 or higher.

3 This requirement may be met by ZOOL 326 and 327.

4 To be selected in consultation and with approval of the student’s advisor.

FOURTH YEAR

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<tbody>
<tr>
<td>Biological Sciences (ZOOL 442, 330)</td>
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<td>Communications (ENG 310)</td>
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<tr>
<td>Social Sciences</td>
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</tr>
<tr>
<td>Electives</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>16</td>
<td>16</td>
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</table>

**TOTAL QTR. HOURS REQUIRED**

<table>
<thead>
<tr>
<th></th>
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</tr>
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<tbody>
<tr>
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<td>16</td>
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<tr>
<td><strong>SECOND</strong></td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>16</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

**MASTER OF SCIENCE IN BIOLOGICAL SCIENCE**

The Department of Biological Sciences offers graduate work leading to the Master of Science in Biological Science. Research studies and courses are available in biology, botany, microbiology and zoology. Biological subspecialties represented by the faculty include cell biology, cryptogamic botany, field and fresh water ecology, invertebrate and vertebrate biology, microbiology and systematics.

**ADMISSION REQUIREMENTS**

Students admitted for graduate work must have a baccalaureate degree and must meet the University graduate school admission requirements. The admission policy is based on a departmental evaluation of the applicant's potential for academic success with the possibility to become a productive scholar, teacher or research investigator in the Biological Sciences. It is expected that students will have the equivalent of general biology (12 credits), botany (4 credits), organic chemistry (8 credits), mathematics (4 credits), microbiology (4 credits), and zoology (4 credits) at the time they begin graduate study or that they will remedy deficiencies as soon as possible upon entering the program. No criteria other than these are used to select students, although prior to graduation students will have to demonstrate proficiency in the basic principles of chemistry and mathematics as applied...
to biology, as well as in general biology, botany, microbiology and zoology.

**PROGRAM**

Each graduate program will vary depending upon the student's area of concentration or subspecialty. Every graduate student will normally be required, however, to enroll in BIOL 692 (Seminar), BIOL 519 (Experimental Methods in Organismic Biology), BIOL 560 (Cytogenetics) and BIOL 675 (Contemporary Studies in Environmental Biology). In addition, students in programs specializing in botany, microbiology or zoology will be expected to enroll in the appropriate 671 course. The academic program will be planned by the student, his advisor and his committee prior to the completion of 15 graduate credits. Research requirements for the degree are met by presentation of a thesis derived from original research (maximum 9 quarter hours credit).

**DEGREE REQUIREMENTS**

A 3.0 grade point average must be maintained in the graduate program. The program requires a minimum of 45 quarter hours of graduate credit including the thesis. At least one-half of the courses must be exclusively graduate level (600 series). A written departmental qualifying examination is given prior to completion of 15 graduate credits and a final comprehensive oral examination is required following completion of an acceptable thesis.

**RESIDENCY REQUIREMENTS**

A minimum of 27 quarter hour credits must be earned at Florida Technological University. Normally, courses completed more than five years previous to the quarter in which the degree is earned may not be used toward meeting degree requirements. A student must be registered in the quarter in which the degree is earned.

**DEPARTMENT OF CHEMISTRY**

Chairman: Baker Bldg. SCI 117, Phone 275-2246
Faculty: Clausen, Cunningham, Garner, Hertel, Idoux, Juge, Knudson, Kujawa (Geology), Larkin, Madsen, Mattson, McGee, Wheeler, Youngblood.

The chemistry curriculum provides the student with an opportunity to develop his ability to think creatively in a dynamic field of human endeavor. Because chemists contribute to a broad spectrum of man's efforts to understand and control his physical environment, the student of chemistry has considerable latitude in his choice of career. He may elect to probe into the nature of the bonding forces that hold molecules together or to seek answers to biological phenomena. A chemist's colleagues might be physicists, physiologists or psychologists. Some of the appeal, therefore, of chemistry is its position as a bridge to other fields of knowledge. As a result, the curriculum has been made sufficiently flexible to permit the student to prepare himself for one or more of the many career possibilities that arise from the unique position that chemistry occupies in the sciences.

A student will, upon graduation, find opportunities for employment in industry, government service and education. Positions may entail basic research or applied research, product development or control, sales, management or teaching.

A chemistry graduate, should he choose to do so, will be in a position to continue his training at the graduate level and to qualify for a more demanding position in the profession.

The degree requirements in chemistry are distributed as follows:

<table>
<thead>
<tr>
<th>Environmental Studies</th>
<th>69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major (including College requirements)</td>
<td>107</td>
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<tr>
<td>Electives</td>
<td>13</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>189</strong></td>
</tr>
</tbody>
</table>
Required courses leading to the Bachelor of Science Degree in chemistry are identified by course number in the following curriculum.

Those students intending to pursue graduate studies are urged to take two years of a foreign language. German is recommended.

SUGGESTED PROGRAM FOR CHEMISTRY

FIRST YEAR
- Biological Sciences
- Chemistry (CHEM 261, 262, 263) (CHEM 264, 251)
- Communications (ENG 101; SPE 101)
- Computer Science (COMP 102)
- Mathematics (MATH 211, 321, 322)

SECOND YEAR
- Chemistry (CHEM 321, 322, 323) (CHEM 351, 352, 324)
- Mathematics (MATH 323, 324)
- Physics (PHYS 211, 212, 213) (PHYS 282, 283)
- Statistics (STAT 301)
- Electives

THIRD YEAR
- Chemistry (CHEM 361, 362, 363) (CHEM 325, 364, 365) (CHEM 431)
- Cultural and Historical Foundations
- Physics (PHYS 380 or 381)
- Social Sciences

FOURTH YEAR
- Chemistry (CHEM 451)
- Communications (ENG Electives)
- Business
- Education
- Engineering
- Electives
- Electives (Advanced Environmental Studies)

TOTAL QTR. HOURS REQUIRED 180

DEPARTMENT OF MATHEMATICAL SCIENCES

Chairman: Dutton, Bldg. CB 437, Phone 275-2341

The Department of Mathematical Sciences offers courses and programs in three closely related areas: Mathematics, Computer Science and Statistics. Emphasis is placed on the dual nature of the mathematical sciences: theoretical on the one hand and practical on the other.

Courses in the mathematical sciences at Florida Technological University are designed to serve five levels of students: (1) those who want to become professional mathematicians, statisticians or computer scientists; (2) those who need to use mathematics, statistics and computer science as tools in their specialty areas; (3) those who intend to teach mathematical sciences in secondary schools, colleges and universities; (4) those who want to prepare for, or undertake, graduate work in the mathematical sciences or

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1 One year of a foreign language will replace 4 hours of Cultural-Historical Foundations and 4 hours of Social Sciences.
related fields; (5) those who desire to increase their understanding of these important disciplines.

**BACHELOR OF SCIENCE IN COMPUTER SCIENCE, MATHEMATICS OR STATISTICS**

The degree requirements in each of the three baccalaureate majors offered by the Department of Mathematical Sciences are summarized in the following table.

<table>
<thead>
<tr>
<th>MAJOR</th>
<th>Env. Studies</th>
<th>AREA</th>
<th>Major</th>
<th>Electives</th>
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<tr>
<td>Computer Sciences</td>
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<td>Major</td>
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<td>17</td>
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<tr>
<td>Mathematics</td>
<td>69</td>
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<td>20</td>
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<tr>
<td>Statistics</td>
<td>69</td>
<td>Major</td>
<td>93</td>
<td>18</td>
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**SUGGESTED PROGRAM FOR COMPUTER SCIENCE**

**FIRST YEAR**

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Computer Science (COMP 205, 207)</td>
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<td>4</td>
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<td>Mathematics (MATH 211)</td>
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<td>4</td>
</tr>
<tr>
<td>(MATH 321, 322, 323)</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Biological Sciences</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Communications (ENG 101; SPE 101)</td>
<td>4</td>
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<td>Social Sciences</td>
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<td><strong>TOTAL</strong></td>
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**SECOND YEAR**

<table>
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<tbody>
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<td>Mathematics (MATH 324, 271)</td>
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<tr>
<td>Statistics (STAT 301)</td>
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<td>3</td>
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<tr>
<td>Computer Science (COMP 302, 305, 306)</td>
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<tr>
<td>Cultural and Historical Foundations</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Social Sciences</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
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**THIRD YEAR**

<table>
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<tbody>
<tr>
<td>Mathematics (MATH 317, 314)</td>
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<tr>
<td>Statistics (STAT 341, 342, 343)</td>
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<tr>
<td>Engineering (EECS 311)</td>
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<tr>
<td>Computer Science (COMP 405)</td>
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<td>Computer Science Electives</td>
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<td>Physical Sciences</td>
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<td>Communications (ENG 310)</td>
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<td><strong>TOTAL</strong></td>
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**FOURTH YEAR**

<table>
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<tr>
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<td>Education</td>
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<td>Engineering</td>
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<tr>
<td>Electives (Advanced Environmental Studies)</td>
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<td>Mathematical Sciences Electives</td>
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**SUGGESTED PROGRAM FOR MATHEMATICS**

**FIRST YEAR**

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<tbody>
<tr>
<td>Computer Science (COMP 205)</td>
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<tr>
<td>Mathematics (MATH 211, 271)</td>
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<td>4</td>
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<tr>
<td>(MATH 321, 322, 323)</td>
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<td>4</td>
</tr>
<tr>
<td>Biological Sciences</td>
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<td>4</td>
</tr>
<tr>
<td>Communications (ENG 101; SPE 101)</td>
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<td>3</td>
</tr>
<tr>
<td>Cultural and Historical Foundations</td>
<td>4</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

2 Computer Science majors must take five courses selected from upper level COMP courses and EECS 414; all majors must complete one of the following sequences of courses: COMP 411, 412 and one of COMP 408, 409; COMP 421, 422 and one of COMP 408, 409; COMP 461, 462, 463; COMP 487, 488, 489; or COMP 401, 402, EECS 414.

3 Mathematical Sciences electives must be at the 300 or 400 level.

1 Including College requirements.
SECOND YEAR
Computer Science (COMP 302)  
Mathematics (MATH 324, 272)  
(MATH 318, 319)  
Statistics (STAT 301)  
Cultural and Historical Foundations  
Social Sciences  
Electives  

TOTAL 15 17 14

THIRD YEAR
Mathematics (MATH 421, 422, 423)  
Mathematical Sciences Electives  
Statistics (STAT 341, 342, 343)  
Physical Sciences  
Social Sciences  
Communications (ENG 310)  

TOTAL 16 15 13

FOURTH YEAR
Mathematical Sciences Electives  
Business  
Education  
Engineering  
Electives (Advanced Environmental Studies)  
Electives  

TOTAL 15 15 15

TOTAL QTR. HOURS REQUIRED 180

SUGGESTED PROGRAM FOR STATISTICS

FIRST YEAR
Computer Science (COMP 205)  
Mathematics (MATH 211, 271)  
(MATH 321, 322, 323)  

Biological Sciences  
Communications (ENG 101; SPE 101)  
Cultural and Historical Foundations  

TOTAL 15 15 15

SECOND YEAR
Computer Science (COMP 302)  
Mathematics (MATH 324)  
Statistics (STAT 301, 332)  
Cultural and Historical Foundations  
Social Sciences  
Electives  

TOTAL 15 15 15

THIRD YEAR
Statistics (STAT 341, 342, 343)  
(STAT 401, 402, 415)  
Computer Science (COMP 481, 482)  
Physical Sciences  
Social Sciences  
Communications (ENG 310)  

TOTAL 14 14 17

FOURTH YEAR
Statistics (STAT 447, 421, 411)  
Mathematical Sciences Electives  
Business  
Education  
Engineering  
Electives (Advanced Environmental Studies)  
Electives  

TOTAL 15 16 14

TOTAL QTR. HOURS REQUIRED 180

MASTER OF SCIENCE IN COMPUTER SCIENCE

The Department of Mathematical Sciences offers graduate work leading to the Master of Science in Computer Science. The program emphasizes course work and research in the subdisciplines of applied software, computer organization, information systems and numerical mathematics.

1 Mathematical Sciences Electives must be at the 300 or 400 level and include at least either (a) twelve hours from group I and six hours from group II, or (b) six hours from group I and twelve hours from group II.


2 Mathematical Sciences Electives must be at the 300 or 400 level.
ADMISSION REQUIREMENTS

Students considered for admission to graduate work must have a baccalaureate degree from an accredited institution and must meet the University graduate studies admission requirements. Admission is based also on an evaluation by the department of the applicant's background and potential for academic success. It is expected that the entering student will have taken the equivalent of at least one course in each of the following areas: data structures, computer organization, programming languages and systems programming, or that the student will remedy any deficiencies as soon as possible upon entering the program.

GENERAL REGULATIONS

Each student will be assigned an advisory committee of at least three faculty members. This committee will approve the student's program, determine that all degree requirements are met and administer a set of final examinations (written and/or oral) designed to evaluate the student's academic proficiency and his maturity in relating this knowledge to new situations. A total program of study must be established prior to registration for the thirteenth graduate quarter hour.

DEGREE REQUIREMENTS

The following requirements must be met by each student before the Master of Science in Computer Science will be awarded. The student must:

1. Earn a minimum of 45 quarter hours credit;
2. Maintain a cumulative average of 3.0 (B) or better in all work specified in the degree program approved by his committee;
3. Pass a set of final examinations administered by the advisory committee;
4. Complete an acceptable thesis or research report;
5. Complete at least 27 quarter hours in Computer Science;
6. Complete at least 27 quarter hours at the 600 level;
7. Comply with all University requirements for the Master of Science degree.

DEPARTMENT OF PHYSICS

Chairman: Noon, Bldg. EN 312, Phone 275-2325
Faculty: Bolemon, Bolte, Brennan, Haley, Henderson, Katzin, Oelfke

Physics is a basic science fundamental to many different fields of endeavor and the courses offered are designed to reflect this. The curriculum allows flexibility through electives for physics majors who wish to prepare for an interdisciplinary type of career by studying other areas of science in depth, as well as increased course content for students planning graduate study. In general, 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. A complete physics program requires both lecture and laboratory courses. In lectures a wide range of physical phenomena, theoretical explanations and analysis techniques are discussed. In laboratory work, students make observations and measurements and analyze data obtained. At the upper division, independent investigation and the use of modern scientific instrumentation are emphasized. Students planning graduate study should include a foreign language and consult their faculty advisor about increased course content in upper level physics courses. Students terminating at a baccalaureate level will be advised of appropriate elective requirements. Planning to allow a double major will be encouraged where appropriate.

Students who are not majoring in physics may select from a variety of regularly offered courses to learn more about their physical environment and to understand and apply scientific methods (e.g., PHYS 100, 103, or 401). Prospective teachers, either at the elementary or secondary level, may also take a
sequence (PHYS 301, 302, 303) involving lectures, discussion and laboratory equipment. Life-science majors and preprofessional students are provided a special lecture-laboratory sequence (PHYS 201, 202, 380). Two interdisciplinary courses (PHYS 307, 343) are offered for students interested in biophysics and computing. Engineering students require two physics courses (PHYS 354, 344) as part of their core program. Chemistry and mathematics majors may choose the normal calculus-physics sequence (PHYS 211, 212, 213) with associated laboratory courses (PHYS 282, 283). Electronics (PHYS 381) and Scientific Instruments Laboratory (PHYS 380) courses are also available.

The degree requirements consist of:

Environmental Studies Program 69
Major (inc. college requirements) 77
Electives 34
TOTAL QUARTER HOURS REQUIRED 180

Required courses leading to the Bachelor of Science degree in Physics are identified by course number in the following curriculum.

### SUGGESTED PROGRAM FOR PHYSICS

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>F</th>
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<tbody>
<tr>
<td>Biological Sciences</td>
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<td>4</td>
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<tr>
<td>Communications (ENG 101; SPE 101)</td>
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</tr>
<tr>
<td>Mathematics (MATH 211)</td>
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<td>3</td>
</tr>
<tr>
<td>(MATH 321, 322, 323)</td>
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<td>4</td>
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<tr>
<td>Physics (PHYS 211, 212, 213)</td>
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<td>(PHYS 282, 283)</td>
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### SECOND YEAR

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<th>Course</th>
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<tbody>
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<tr>
<td>Computer Science (COMP 302)</td>
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<td></td>
<td>4</td>
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<tr>
<td>Cultural &amp; Historical Foundations¹</td>
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<td>Mathematics (MATH 324, 331)</td>
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<tr>
<td>Physics (PHYS 311, 312, 313)</td>
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<td>Social Sciences¹</td>
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<tr>
<td>Statistics (STAT 335)</td>
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### THIRD YEAR

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Engineering</td>
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</tr>
<tr>
<td>Physics (PHYS 314, 315, 343)</td>
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<td>4</td>
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<tr>
<td>(PHYS 381, 382)</td>
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<td>Electives²</td>
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<td>TOTAL</td>
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### FOURTH YEAR

<table>
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<td>Education</td>
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<td>Restricted Electives³</td>
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<td>Electives (Advanced Environmental Studies)</td>
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<tr>
<td>TOTAL</td>
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</tbody>
</table>

TOTAL QTR. HOURS REQUIRED 180

### PREPROFESSIONAL PROGRAMS

Preprofessional Coordinator: Laird Bldg. AD 215, Phone 275-2691

The Office of the Preprofessional Coordinator has been created to operate as a service to all students preparing for and seeking admission to a professional school of dentistry, medicine, optometry, pharmacy and veterinary medicine.

1 One year of a foreign language will replace 4 hours of Cultural and Historical Foundations and 4 hours of Social Sciences.

2 The CHEM 26... sequence is recommended.

3 Upper division PHYS courses, or those satisfying double major requirements.
The services afforded the student through this office are numerous and range from simple advising and counseling in preprofessional matters to providing a compiled preprofessional evaluation of the student to each professional school to which he desires to apply. Upon entering the preprofessional program at Florida Technological University, each student will be assigned to a faculty adviser within the academic department of his major. Each student is urged to take full advantage of the services available through this office.

**PREMEDICAL, PREDENTAL AND PREVETERINARY PROGRAMS**

Although many professional schools accept students who have satisfactorily completed 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 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 predental, premedical and preveterinary student is urged to choose a degree granting program for a major since majors such as "premed" do not lead to the awarding of a degree. Also, each student is encouraged to pursue a degree program to prepare 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 many professional schools. In addition, he will find in his curriculum adequate elective hours with which, in consultation with his advisor, to obtain other needed courses not specifically contained within the curriculum of his degree program.

If the predental or premedical student completes all the courses listed in Table I, he will have satisfied the specific course requirements for admission to all dental schools and to most medical schools as listed in the current editions of Admission Requirements of American Dental Schools, published by the American Association of Dental Schools, and Medical School Admission Requirements in the U.S.A. and Canada, published by the Association of American Medical Colleges. Each student is urged to consult these publications (available in the University Bookstore) to determine the specific admission requirements of the professional schools to which he is planning to make application.

The preveterinary student must complete all the courses listed in Table II, plus the Basic Program of the Environmental Studies Program as shown on page of this Bulletin, to meet the requirements of those schools of veterinary medicine participating with the State of Florida through the Southern Regional Educational Board (SREB) Plan. Information regarding specific application procedures to schools of veterinary medicine may be obtained from the Office of the Preprofessional Coordinator.

**TABLE I.**

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 100</td>
<td></td>
</tr>
<tr>
<td>BIOL 332 (or 520)</td>
<td>Cell Physiology (or Cytology)</td>
</tr>
<tr>
<td>BIOL 360</td>
<td></td>
</tr>
<tr>
<td>CHEM 251</td>
<td></td>
</tr>
<tr>
<td>CHEM 261, 262, 263</td>
<td>Chemistry Fundamentals</td>
</tr>
<tr>
<td>CHEM 264</td>
<td></td>
</tr>
<tr>
<td>CHEM 321, 322, 323</td>
<td>Organic Chemistry</td>
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TABLE II.
PREVETERINARY REQUIREMENTS

<table>
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<tbody>
<tr>
<td>BIOL 100</td>
<td>General Biology</td>
</tr>
<tr>
<td>BIOL 360</td>
<td>Genetics</td>
</tr>
<tr>
<td>BOT 100</td>
<td>General Botany</td>
</tr>
<tr>
<td>CHEM 251</td>
<td>Analytical Fundamentals</td>
</tr>
</tbody>
</table>

1 Students deficient in algebra and trigonometry must make up this deficiency before enrolling in MATH 211.

2 Proficiency in Russian, German, French, Spanish or another foreign language approved by the student’s advisor can be demonstrated by examination or by successful completion of 9 credits of the language. Students planning to enter a professional school requiring two years of a language should take an additional 3 quarters of the language.

3 Electives should include courses applicable to the student’s chosen major and professional goal as well as other courses, selected in consultation with the student’s advisor, to complete the Environmental Studies Program. If, after completing all courses required for admission to the professional school and satisfying the degree requirements of the major, the student still has elective hours available, consideration should be given to the following courses: ACCY 211, 212; AHS 320, 321, 350; MGMT 301, 364; MRA 305.

PREOPTOMETRY AND PREPHARMACY PROGRAMS

Although not required to pursue a degree granting program, preoptometry and prepharmacy students are strongly urged to do so. Lists of courses designed to satisfy minimum admission requirements to professional schools of optometry and pharmacy are shown in the following tables.

4 The animal science courses must be taken as a transient student at an approved institution.

5 Electives should include courses applicable to the student’s chosen major and professional goal as well as other courses, selected in consultation with the student’s advisor, to complete the Environmental Studies Program. If, after completing all courses required for admission to the professional school and satisfying the degree requirements of the major, the student still has elective hours available, consideration should be given to the following courses: ACCY 211, 212; AHS 350; MGMT 301, 364.
### TABLE III.
**PREOPTOMETRY REQUIREMENTS**

<table>
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<tbody>
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<tr>
<td>BOT 100</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 251</td>
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</tr>
<tr>
<td>CHEM 261, 262, 263</td>
<td>10</td>
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<tr>
<td>CHEM 264</td>
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<td>CHEM 321, 322, 323</td>
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<tr>
<td>CHEM 324</td>
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<td>ENG 101</td>
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<tr>
<td>ENG 103</td>
<td>3</td>
</tr>
<tr>
<td>ENG 310</td>
<td>3</td>
</tr>
<tr>
<td>MATH 211&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td>MATH 320</td>
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<tr>
<td>MICR 200</td>
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<td>MICR 210</td>
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</tr>
<tr>
<td>PHYS 380</td>
<td>3</td>
</tr>
<tr>
<td>ZOOL 100</td>
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</tr>
<tr>
<td>Electives&lt;sup&gt;2&lt;/sup&gt;</td>
<td>27</td>
</tr>
</tbody>
</table>

<sup>1</sup> Students deficient in algebra and trigonometry must make up this deficiency before enrolling in MATH 211.

<sup>2</sup> Approved electives may include: ACCY 211, 212; AHS 320, 321, 340, 341, 350, 375; BADM 101; HIST 311, 312, 313; MGMT 301, 364; MRA 305; PSY 201, 202; SOC 201, 202; and other courses selected in consultation with the student's advisor to complete the Basic program of the Environmental Studies program.

### TABLE IV.
**PREPHARMACY REQUIREMENTS**

<table>
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<td>CHEM 261, 262, 263</td>
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<td>CHEM 321, 322, 323</td>
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<tr>
<td>ENG 103</td>
<td>3</td>
</tr>
<tr>
<td>ENG 310</td>
<td>3</td>
</tr>
<tr>
<td>MATH 211&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td>MATH 320</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 201, 202</td>
<td>6</td>
</tr>
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<td>PHYS 380</td>
<td>3</td>
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<tr>
<td>ZOOL 100</td>
<td>4</td>
</tr>
<tr>
<td>Electives&lt;sup&gt;3&lt;/sup&gt;</td>
<td>36</td>
</tr>
</tbody>
</table>

<sup>3</sup> Approved electives may include: ACCY 211, 212; AHS 320, 321, 340, 341, 350, 375; BADM 101; CHEM 351, 352; MGMT 301, 364; MRA 305; MICR 200, 300; STAT 301; and other courses selected in consultation with the student's advisor to complete the basic program of the Environmental Studies Program.
COLLEGE OF SOCIAL SCIENCES

COMMUNICATION
COMMUNICATIVE DISORDERS
FILM
JOURNALISM
RADIO-TELEVISION
SPEECH

ECONOMICS

POLITICAL SCIENCE
PUBLIC ADMINISTRATION

PRE-LAW
PSYCHOLOGY
SOCIOLOGY
ANTHROPOLOGY
SOCIAL WELFARE

MASTER OF ARTS IN COMMUNICATION
MASTER OF PUBLIC POLICY
MASTER OF SCIENCE IN PSYCHOLOGY
COLLEGE OF SOCIAL SCIENCES

In keeping with the aims of Florida Technological University, the College of Social Sciences provides a 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 in the following areas: Communication (Communicative Disorders, Film, Journalism, Radio-Television, Speech), Criminal Justice, Economics, Political Science (Public Administration), Psychology, and Sociology (Anthropology, Social Welfare). The College also awards the Masters Degree in Communication and Psychology.

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 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.

AEROSPACE STUDIES

Chairman: Major Whisenant, Bldg. AD 350, Phone 275-2264
Faculty: Captain Hoffman

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 a two-year and a four-year commissioning program, each with its own special advantages. The two-year program allows junior college transfer students and other students with two academic years remaining in either undergraduate or graduate status to obtain an Air Force commission while completing their studies. The four-year program provides on-campus study during the freshman through senior years. Both programs offer scholarships for selected students. Such scholarships include full tuition, fees, required text books, and $100 per month. The Aerospace Studies curriculum is divided into two phases: (1) the General Military Course and (2) the Professional Officer Course. Student are invited to write or visit the Department of Aerospace Studies to obtain additional information.

GENERAL MILITARY COURSE

The General Military Course consists of the freshman and sophomore courses for students in the four-year AFROTC program. These courses form a single unit entitled "U.S. Military Forces in the Contemporary World," and they focus upon elements of power in the modern world, the nature of military power, and the implications and applications of military power. The General Military Course is designed to strengthen the student's interest in becoming a professional Air Force officer, develop his knowledge of world military forces, and enable him to understand how the United States Air Force supports national objectives.
PROFESSIONAL OFFICER COURSE

The Professional Officer Course consists of Aerospace Studies courses offered during the junior and senior years. It must be completed by all students who seek a commission through the Air Force ROTC. Course continuity is designed to prepare selected college students to serve as active duty Air Force officers upon graduation and commissioning. The curriculum stresses the growth and development of aerospace power, the United States space program, leadership, management, and professionalism. Special emphasis is placed on developing the cadet’s communicative skills.

CORPS TRAINING

Corps Training is the formalized phase of leadership training conducted both on the drill field and in the classroom. It is scheduled for one hour each week for both the general military and the professional officer courses.

REQUISITES FOR ADMISSION TO THE PROFESSIONAL OFFICER COURSE

1. Be at least 17 years of age at the time of acceptance.
2. Be able to complete the Professional Officer Course and graduate from University prior to reaching age 26 years and 6 months if entering Flight Training or before age 30 if entering non-flying category.
3. Pass the Air Force Officer Qualifying Test and physical examination.
4. For those students enrolled in the four-year AFROTC program, complete the General Military Course or its equivalent, or have acceptable prior military service. Veterans and students with previous ROTC training are invited to write or visit the Department of Aerospace Studies to discuss their status.
5. For those students desiring entry into two-year AFROTC program, complete the application and testing process preferably prior to April 1 of the year preceding the one in which they wish to enroll in the Professional Officers Course; complete a six-week Field Training encampment prior to enrollment in the Professional Officers Course.
6. Selection by the Professor of Aerospace Studies and acceptance by the University.
7. Execute a written agreement with the government to complete the Professional Officer Course and accept an Air Force commission.
8. Enlist in the Air Force Reserve for a period of six years (terminated upon entering Air Force as a commissioned officer).

AIR FORCE ROTC COLLEGE SCHOLARSHIP PROGRAM

The ROTC Vitalization Act of 1964 established military scholarships for selected cadets in the four-year AFROTC program. In 1972, scholarships were extended to selected students entering the two-year AFROTC program. Such scholarships provide for full tuition, fees and required text books. In addition, recipients of these scholarships receive $100 per month. Recipients of scholarships are nominated by a committee composed of AFROTC officers and university faculty. Final selection is made at AFROTC Headquarters, Maxwell AFB, Alabama. Usually if required standards are maintained, the scholarships continue through the selectee’s senior year.

MONETARY ALLOWANCE

Cadets enrolled in the Professional Officer Course receive a monetary allowance of $100 per month.
SUMMER TRAINING:
TWO-YEAR PROGRAM

Students must complete the six-week Field Training course before they can formally enroll in the Professional Officer Course. This course is conducted at an Air Force base. It includes military training, physical conditioning, and a modified version of the General Military Course. Students who complete the six-week Field Training receive approximately $400.

SUMMER TRAINING:
FOUR-YEAR PROGRAM

Cadets enrolled in the four-year AFROTC program are required to attend a four-week Field Training course at an Air Force base. Normally, cadets must attend this program at the end of the General Military course. Summer Field Training provides a better understanding of the United States Air Force mission, increases the cadet’s proficiency in junior officer training area, and stresses the importance of physical conditioning. Cadets who complete the four-week Field Training course receive approximately $265.

FLIGHT INSTRUCTION PROGRAM

Cadets in the Professional Officer Course who are qualified for and seek pilot training in the United States Air Force receive thirty-six and one-half clock hours of civilian flight instruction and approximately 40 hours of ground school. This instruction may qualify the cadet for a private pilot’s license.

OFFICER COMMISSIONS

Cadets 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) or six years (flying). During this period of active service, they are encouraged to and may remain on active duty indefinitely. They are given the opportunity during this period to obtain a regular commission in the United States Air Force.

MAJOR

A student taking the Air Force ROTC program may major in any discipline he desires. A major is not offered by this department. Courses offered by AFROTC may be found under “Course Descriptions” under the prefix AFR.

MAJOR IN COMMUNICATION

Chairman: Buchanan, Bldg. AD 140, Phone 275-2681
Faculty: Arnold, Bledsoe, Butler, Couch, Fedler, Jackson, Johansen, Johnson, League, Meeske, Morgan, Mullin, O’Keefe, Pryor, Sheinkopf, Taylor, Ward, Wycoff

BACHELOR OF ARTS IN COMMUNICATION

The Department of Communication affords the student an opportunity to concentrate in the areas of communication with emphasis in communicative disorders, journalism, radio-television-film, and speech.

A major in communication requires a minimum of 54 hours including COM 301, Communication as a Behavioral Science (4).

Any student contemplating graduate studies should be aware of special requirements in some graduate schools, such as foreign languages, statistics, and computer programming.
An internship program is available to qualified students. This program earns elective credit only and cannot be applied to the major requirement of 54 hours.

Students may select one of the following programs of study to complete the requirements for a major in communication:

**EMPHASIS PROGRAM**

In the student's overall program in communication, 36-39 quarter hours must be elected in an area of emphasis, whether communicative disorders, journalism, radio-television-film or speech. In addition, 11-14 quarter hours must be elected within two additional areas in the communication department other than the field selected for emphasis. The following are required courses based upon the emphasis chosen:

**COMMUNICATIVE DISORDERS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>COM 320</td>
<td>Introduction to Communicative Disorders</td>
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<tr>
<td>COM 321</td>
<td>Biolinguistics</td>
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<tr>
<td>COM 377</td>
<td>Differential Diagnosis in Communicative Disorders</td>
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</tr>
<tr>
<td>COM 401</td>
<td>Communicative Disorders: Articulation</td>
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<td>COM 402</td>
<td>Communicative Disorders: Language</td>
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</tr>
<tr>
<td>COM 404</td>
<td>Communicative Disorders: Stuttering</td>
<td>4</td>
</tr>
<tr>
<td>COM 405</td>
<td>Clinical Methods in Communicative Disorders</td>
<td>4</td>
</tr>
<tr>
<td>COM 445</td>
<td>Basic Audiology</td>
<td>5</td>
</tr>
<tr>
<td>COM 450</td>
<td>Aural Habilitation</td>
<td>4</td>
</tr>
<tr>
<td>SPE 261</td>
<td>English Phonetics and American Dialects</td>
<td>5</td>
</tr>
<tr>
<td>SPE 364</td>
<td>Physical Bases of Speech and Hearing</td>
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**SUGGESTED PROGRAM FOR COMMUNICATIVE DISORDERS**

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<tr>
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<td>MATH 101 4</td>
<td>Science 4</td>
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<td>BIOL 100 4</td>
<td>COM 100 3</td>
<td>COM 261 5</td>
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<td>Science 4</td>
<td>HUM 201 4</td>
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<td>COM 320 4</td>
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<td>PCL 305 4</td>
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<th>Winter</th>
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</thead>
<tbody>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td>PSY 301 4</td>
<td>PSY 304 4</td>
<td>PSY 310 4</td>
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<tr>
<td></td>
<td>COM 403 4</td>
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<td>COM ELEC 4</td>
<td>SPE 362 4</td>
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<td><strong>TOTAL</strong></td>
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<td>15</td>
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**FILM:**
- COM 100 Basic Communication (ESP) 3
- RTV 140 Foundations of Broadcasting 4
- RTV 242 Broadcasting Techniques 4
- COM/THA 310 History of Motion Picture 4
- JRN 323 Press Photography 4
- ART 341 Photography 3
- RTV 345 Film for TV 4
- RTV 445 TV Film Production 4
- RTV 447 TV Film Documentary 4
- ART 202 Design Fundamentals II (ESP) 3
- or
- THA 210 Cinema Survey (ESP) 4

Electives must include 9-10 hours from two additional areas in the Communication Department.

**JOURNALISM:**
- COM 319 Basic Reporting 5
- JRN 321 Copy Editing 4
- JRN 322 Information Processing 4
- JRN 330 History of American Journalism 4
- COM 411 Legal Responsibilities of the Mass Media 4
- JRN 431 International Communication and the Foreign Press 4
- COM 434 Principles of Advertising 4

Other recommended courses for those students planning a career in news reporting include PSY 308, SOC 325, SOC 331, and SOC 335.

**SUGGESTED PROGRAM FOR JOURNALISM**

**FIRST YEAR**

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**SECOND YEAR**

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<td>HUM 311</td>
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**THIRD YEAR**

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<thead>
<tr>
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<tbody>
<tr>
<td>COM 319</td>
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<td>JRN 322</td>
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<tr>
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<td>SOC 331</td>
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**FOURTH YEAR**

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**RADIO-TELEVISION:**
- RTV 355 Foundations of Broadcasting 4
- RTV 446 Radio-Television and Society 4
- COM 411 Legal Responsibilities of the Mass Media 4
- RTV 448 Broadcast Regulations 4
- RTV 452 Broadcast Criticism 4

In addition the student must select one of the following courses:

- RTV 340 Audio Production 4
- RTV 341 Television Production 4
- RTV 345 Film for Television 4

Other recommended courses include COM 310, SOC 325, and PSY 308.
SUGGESTED PROGRAM FOR RADIO-TELEVISION

### FIRST YEAR

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### THIRD YEAR

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### SPEECH:

- SPE 261: English Phonetics and American Dialect 5
- SPE 360: Argumentation and Debate 4
- COM 363: Group Interaction and Decision-Making 4
- SPE 366: Speech Composition 4
- SPE 371: Speech and Human Relations 3
- SPE 362: Platform Speaking 4

In addition, required hours must be selected from each of the following areas:

- **Interpersonal and Organizational Communication (3-4 hrs.)**
  - COM 313: Interpersonal Communication 3
  - COM 312: Leadership Through Oral Communication 4
  - SPE 361: Persuasion: Motivation 4

- **Experimental (4 hrs.)**
  - COM 460: Group Dynamics 4
  - COM 542: Persuasion: Attitude Formation and Change 4
  - COM 463: Studies in Listening 4

- **History and Criticism (4-5 hrs.)**
  - COM 568: Evolution of Communication Theory 5
  - SPE 470: History and Criticism of American Public Address 4
  - SPE 471: History and Criticism of British Public Address 4
  - COM 572: Rhetoric of Social and Political Action 4

Students interested in secondary school teaching should refer to the Speech Education Program contained within the College of Education for program information.

### SUGGESTED PROGRAM FOR SPEECH COMMUNICATION

#### FIRST YEAR

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#### SECOND YEAR

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GENERAL PROGRAM

In the student's overall program in communication 35-36 quarter hours are required. In addition, a minimum of 11-12 hours must be selected within two of the areas in the Communication Department. The following are the required courses:

**COMMUNICATION**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COM 363</td>
<td>Group Interaction and Decision-Making</td>
<td>4</td>
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<tr>
<td>COM 410</td>
<td>Social Responsibilities of the Mass Media</td>
<td>4</td>
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<tr>
<td>COM 411</td>
<td>Legal Responsibilities of the Mass Media</td>
<td>4</td>
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<tr>
<td>COM 462</td>
<td>Persuasion: Attitude Formation and Change</td>
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In addition, required hours must be selected from each of the following areas:

**History (4)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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<td>JRN 330</td>
<td>History of American Journalism</td>
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<td>COM 568</td>
<td>Evolution of Communication</td>
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<tr>
<td>SPE 470</td>
<td>History and Criticism of American Public Address</td>
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**FOR COURSE DESCRIPTIONS REFER TO SPECIFIC AREAS: Communication, Journalism, Radio-television, Speech.**

The table below illustrates the requirements for a major in communication:

**AREAS**

<table>
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<tr>
<th>Area</th>
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<td>Basic (55)</td>
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<td>Advanced (14)</td>
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<td>Electives</td>
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<td>Primarily to be selected</td>
<td></td>
</tr>
<tr>
<td>from upper level courses</td>
<td></td>
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<tr>
<td>outside the Department,</td>
<td></td>
</tr>
<tr>
<td>with the approval of the</td>
<td></td>
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<tr>
<td>student's advisor</td>
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**TOTAL QTR. HOURS REQUIRED**

180
SECOND YEAR

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THIRD YEAR

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<td>MKTG 301</td>
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FOURTH YEAR

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<td>COM 462</td>
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<td>HIST 418</td>
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MASTER OF ARTS IN COMMUNICATION

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, and other areas drawn from the divisions of Journalism, Radio-Television, and Speech.

Admission to the program will be made on the basis of minimal University requirements, GPA, MAT, GRE, three letters of recommendation from undergraduate professors, and the undergraduate transcript.

The graduate student in Communication will be required to take a minimum of 45 quarter hours and to maintain a grade of "B" or better for each course taken in the department. The student will present a satisfactory thesis and stand a comprehensive written and oral examination. In addition, the student may be required to demonstrate a proficiency in statistics and computer programming.

The basic core (24 hours) is required of all students in the program.

Basic Core: COM 602, COM 695, COM 696 and 12 hours of prescribed courses from communication law, communication systems and small group communication.

SUGGESTED COMMUNICATION GRADUATE PROGRAM

(45 hours plus thesis)

First Quarter (12 hrs.) Second Quarter (12 hrs.)

| COM 602 (4) | COM 635 (4) |
| COM 695 (4) | or          |
| Elective (4) | COM 615 (4) |
| or          | COM 696 (4) |
| or          | Elective (4) |

Third Quarter (12 hrs.) Fourth Quarter (12 hrs.)

| COM 603 (4) | Electives (9) |
| or          | Thesis (3)    |
| COM 630 (4) |
| or          |
| COM 612 (4) |
| or          |
| COM 620 (4) |
| or          |
| COM 622 (4) |
| Elective (4) |

MAJOR IN CRIMINAL JUSTICE

A professional career in the field of Criminal Justice offers a special challenge in a contemporary society that is complex, dynamic, heterogeneous and mobile, and places a high value
upon individual freedom. Today, more than ever before, the various criminal justice sub-fields offer a special challenge that is both demanding and rewarding.

A criminal justice career enables young men and women to serve their country and their community in an extraordinarily interesting, active and complex field. The 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 course concentration: law enforcement, corrections, and justice administration. Study options for either service or administrative careers are available in law enforcement or corrections and the justice administration concentration offers study options for either court service work or justice system policy and planning. The satisfactory completion of the curriculum leads to the degree of Bachelor of Arts in Criminal Justice.

CRIMINAL JUSTICE

The present major in Criminal Justice requires 75 quarter hours of criminal justice and criminal justice-related course work. This total is subdivided as listed below.

1. Criminal Justice Core Courses (required of all majors)
   CRJ 201 Introduction to Criminal Justice
   CRJ 302 Administration of Justice
   CRJ 310 The Correctional and Penal System
   PCL 350 Public Administration

2. Additional criminal justice courses must be taken in the specific area of concentration to complete a total of 45 hours in criminal justice major.

3. The balance of the 75 quarter hours (30 hours) must come from the following listing of approved courses for each area of concentration. The college may approve exceptional 30 hour allied programs for students electing to pursue special areas such as the forensic sciences, computer sciences, or some other appropriate and/or related field of study.

   Corrections Concentration
   CRJ 300 Crime in America
   CRJ 301 Criminal Law in Action
   CRJ 304 The Police Manager
   CRJ 311 Parole and Probation
   CRJ 407 Comparative Justice Systems
   CRJ 410 Financial Administration and Budgeting
   CRJ 411 Justice Policy and Social Conflict
   CRJ 422 Delinquency Control
   CRJ 423 Corrections Administration
   CRJ 491 Special Topics

   Recommended Allied Field
   SOC 325 Urban Sociology
   SOC 340 Social Welfare
   SOC 344 Sociology of Deviant Behavior
   SOC 345 Juvenile Delinquency
   SOC 346 Criminology
   SOC 347 Sociology of Mental Illness
   or
   PSY 310 Abnormal Psychology
   PSY 301 Basic Learning Processes
   PSY 321 Principles of Behavior Modification
   COM 313 Interpersonal Communication
   COM 363 Group Interaction and Decision-making
   PCL 300 State Government
   PCL 414 Metropolitan Government

   Law Enforcement Concentration
   CRJ 300 Crime in America
   CRJ 303 Municipal Police Administration
   CRJ 304 The Police Manager
   CRJ 400 The Police and the Community
   CRJ 410 Financial Administration and Budgeting
   CRJ 411 Justice Policy and Social Conflict
   CRJ 422 Delinquency Control
   CRJ 301 Criminal Law in Action
   CRJ 407 Comparative Justice System
   CRJ 491 Special Topics
Recommended Allied Field
SOC 345  Juvenile Delinquency
SOC 346  Criminology
SOC 344  Sociology of Deviant Behavior
or
PSY 310  Abnormal Psychology
PSY 308  Social Psychology
COM 311  Business and Professional Communication
COM 313  Interpersonal Communication
PCL 414  Metropolitan Administration
PCL 300  State Government
PCL 471  Constitutional Law
PCL 491  Special Topics in Public Administration
SOC 352  Race and Ethnic Minorities in the United States

The Criminal Justice Program offers a limited number of internships and field placements with federal, state and local agencies. Generally such placements are available only to seniors and only during their last two quarters of course work, and students are usually placed with an agency that offers a work experience that matches their area of study concentration.

SUGGESTED PROGRAM IN CRIMINAL JUSTICE

FIRST YEAR

Fall Winter Spring
CRJ 201  4 HUM 201  4 CHEM 101  4
SPE 101  3 ENG 301  3 SOC 201  3
ENG 101  4 PCL 201  4 PSY 201  3
BIOL 100  4 STAT 201  4 HIST 201  4
TOTAL 15 15 15

SECOND YEAR

Fall Winter Spring
COMP 101  4 HUM 300  4 PSY 202  3
or or PSY 202  3
PHI 201  4 PHI 221  4 CRJ 300  4
CRJ 302  4 GEOL 100  4 CRJ 301  4
SOC 202  3 CRJ 310  4 COM 313  4
COM 301  4 BADM 371  3 CRJ 301  4
TOTAL 15 15 15

THIRD YEAR

Fall Winter Spring
CRJ 303  4 CRJ 304  4 CRJ 407  4
SOC 345  4 CRJ 311  4 CRJ 411  4
ENGR 483  3 PCL 350  4 SOC 346  4
PSY 310  4 PCL 300  4 EDTA 481  3
TOTAL 16 16 15

FOURTH YEAR

Fall Winter Spring
CRJ 422  4 COM 411  4 CRJ 491  4-5
CRJ 400  4 CRJ 410  4 ECON 307  3
PCL 414  4 PCL 471  4 ENG 310  3
HIST 324  4 SOC 347  4 BADM 302  3
TOTAL 16 16 13-14

Recommended Allied Field
PCL 300  State Government
PCL 413  Metropolitan Politics
PCL 414  Metropolitan Administration
PCL 416  Public Administration Internship
PCL 417  Policy Problems of Metropolitan Areas
or
PCL 418  The Politics of Planning for Urban Communities
PCL 471  American Constitutional Law
SOC 335  Social Institutions
SOC 352  Race and Ethnic Minorities in the United States
COM 400  Opinion and the Mass Media
COM 411  Legal Responsibilities of the Mass Media
or
COM 410  Social Responsibilities of the Mass Media
PCL 491  Special Topics in Public Administration

Justice Administration Concentration
CRJ 300  Crime in America
CRJ 303  Municipal Police Administration
CRJ 400  Police and the Community
CRJ 407  Comparative Justice Systems
CRJ 410  Financial Administration and Budgeting
CRJ 411  Justice Policy and Social Conflict
CRJ 423  Corrections Administration
CRJ 304  The Police Manager (Justice Planning — option)
or
CRJ 311  Parole and Probation (Court Service — option)
CRJ 491  Special Topics: Courts Operations
or
CRJ 491  Special Topics: Criminal Justice Planning
CRJ 492  Seminar

SUGGESTED PROGRAM IN CRIMINAL JUSTICE

FIRST YEAR

Fall Winter Spring
CRJ 201  4 HUM 201  4 CHEM 101  4
SPE 101  3 ENG 301  3 SOC 201  3
ENG 101  4 PCL 201  4 PSY 201  3
BIOL 100  4 STAT 201  4 HIST 201  4
TOTAL 15 15 15

SECOND YEAR

Fall Winter Spring
COMP 101  4 HUM 300  4 PSY 202  3
or or PSY 202  3
PHI 201  4 PHI 221  4 CRJ 300  4
CRJ 302  4 GEOL 100  4 CRJ 301  4
SOC 202  3 CRJ 310  4 COM 313  4
COM 301  4 BADM 371  3 CRJ 301  4
TOTAL 15 15 15

THIRD YEAR

Fall Winter Spring
CRJ 303  4 CRJ 304  4 CRJ 407  4
SOC 345  4 CRJ 311  4 CRJ 411  4
ENGR 483  3 PCL 350  4 SOC 346  4
PSY 310  4 PCL 300  4 EDTA 481  3
TOTAL 16 16 15

FOURTH YEAR

Fall Winter Spring
CRJ 422  4 COM 411  4 CRJ 491  4-5
CRJ 400  4 CRJ 410  4 ECON 307  3
PCL 414  4 PCL 471  4 ENG 310  3
HIST 324  4 SOC 347  4 BADM 302  3
TOTAL 16 16 13-14
MAJOR IN ECONOMICS

Students majoring in economics in the College of Social Sciences must take ACCY 307, ECON 201, 202, 203, 321, 431, ENG 301, and FIN 331, and 28 hours beyond the Environmental Studies requirements, from the behavioral sciences, mathematics, and the social sciences. 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 of the economics courses are offered and administered by the College of Business Administration, they are available to students majoring in economics in either the College of Business Administration or the College of Social Sciences.

Students may select one of the following two programs of study to complete major course requirements for the Bachelor of Arts degree in Economics:

1. General Economics
   A. Required:
      ECON 301  Intermediate Price Theory (4)
      ECON 311  Intermediate Money, Income and Employment Theory (4)
   B. Electives:
      Six courses in economics not used elsewhere

2. Quantitative Economics
   A. Required:
      ECON 301  Intermediate Price Theory (4)
      ECON 311  Intermediate Money, Income and Employment Theory (4)
      ECON 371  Mathematical Economics (4)
      ECON 421  Economic Statistical Analysis (5)
      ECON 451  Econometrics (3)
   B. Electives:
      Three courses in economics not used elsewhere.

The table below illustrates the requirements for a major in Economics:

<table>
<thead>
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<th>AREAS</th>
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<td>Environmental Studies Program</td>
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<td>Advanced (15)</td>
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<tr>
<td>Major Area Credits</td>
<td>82-86</td>
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<tr>
<td>Electives</td>
<td>25-29</td>
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<td>Primarily to be selected from upper level courses outside the Department, with the approval of the student's advisor.</td>
<td></td>
</tr>
<tr>
<td>TOTAL QTR. HOURS REQUIRED</td>
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</tr>
</tbody>
</table>

JOURNALISM (See Communication)

MAJOR IN POLITICAL SCIENCE

Chairman: Young, Bldg. AD 138, Phone 275-2608

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.

The major in political science consists of a minimum of 48 quarter hours, including the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL 201</td>
<td>American National Government</td>
<td>4</td>
</tr>
<tr>
<td>PCL 302</td>
<td>Scope and Methods of Political Science</td>
<td>4</td>
</tr>
<tr>
<td>PCL 303</td>
<td>Principles of Political Science</td>
<td>4</td>
</tr>
</tbody>
</table>
A student must also include a minimum of five courses at the 400 level. A portion of the student's 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.

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.

Prerequisites for political science majors for all courses numbered 300 or above are PCL 201, PCL 302 and PCL 303. For non-majors there are no prerequisites except permission of the instructor.

The following areas of concentration are provided to guide majors in Political Science in course selection.

American Institutions and Public Policy
- PCL 305: Political Parties
- PCL 306: Interest Groups and Political Movements
- PCL 308: American Presidency
- PCL 310: Congress and the Legislative Process
- PCL 312: Minorities in American Politics
- PCL 315: Public Opinion
- PCL 316: Electoral Behavior
- PCL 425: Political Party Behavior
- PCL 450: American Public Policy
- PCL 471: American Constitutional Law
- PCL 473: American Constitutional Law
- PCL 475: Judicial Behavior
- PCL 490: Series
- PCL 411: Public Policy Administration

International Politics
- PCL 321: International Relations
- PCL 323: Contemporary International Politics
- PCL 348: Politics of Mexico, Central America and the Caribbean
- PCL 349: Politics of South America

PCL 420: Contemporary International Politics of Asia
PCL 421: International Politics of the Middle East
PCL 422: Inter-American Politics and Organizations
PCL 427: American Foreign Policy
PCL 428: American Defense Policy
PCL 430: International Organizations
PCL 433: International Law
PCL 435: Coercion in International Politics
PCL 490: Series

Comparative Politics
- PCL 341: Comparative European Politics
- PCL 342: Nationalism
- PCL 343: Politics of Developing Areas
- PCL 344: Comparative Asian Politics
- PCL 348: Politics of Mexico, Central America and the Caribbean
- PCL 349: Politics of South America
- PCL 442: Government and Politics of Great Britain
- PCL 443: Government and Politics of the Soviet Union
- PCL 444: Government and Politics of China
- PCL 447: Comparative Political Culture and Socialization
- PCL 490: Series

Political Theory and Methodology
- PCL 316: Electoral Behavior
- PCL 360: American Political Philosophy
- PCL 403: Political Behavior
- PCL 405: Political Theory
- PCL 406: Contemporary Democratic Theory
- PCL 461: Political Philosophy
- PCL 462: Political Philosophy
- PCL 463: Political Philosophy
- PCL 490: Series
- PCL 300: State and Metropolitan Government and Politics
- PCL 306: Interest Groups and Political Movements
- PCL 312: Minorities in American Presidency
- PCL 413: Metropolitan Politics
- PCL 414: Metropolitan Administration
- PCL 417: Policy Problems of Metropolitan Areas
- PCL 418: The Politics of Planning for Urban Communities
- PCL 510: Administrative Problems of Metropolitan Areas
- PCL 490: Series
SUGGESTED PROGRAM IN POLITICAL SCIENCE (Political Behavior)

FIRST YEAR

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<tr>
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<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
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SECOND YEAR

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<td>EDTA 480 3</td>
<td>PCL 403 4</td>
<td>PCL 450 4</td>
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<tr>
<td>or</td>
<td>481 3</td>
<td>PCL 413 4</td>
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<tr>
<td>or</td>
<td>417 4</td>
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<td></td>
<td>PCL 405 4</td>
<td>SOC 353 4</td>
<td>COM 400 4</td>
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FOURTH YEAR

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<tr>
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<td></td>
<td>SOC 401 4</td>
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<td>TOTAL</td>
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<td>15</td>
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</table>

PUBLIC ADMINISTRATION

Students considering careers in public service at the federal, state or local level may opt for the public administration concentration offered by the Department of Political Science, College of Social Sciences. The following courses are required for completion of the degree in Political Science/Public Administration:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PCL 201</td>
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<tr>
<td>PCL 302</td>
<td>Scope and Methods of Political Science</td>
<td>4</td>
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<tr>
<td>or</td>
<td>PCL 303</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td>PCL 350</td>
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<td>or</td>
<td>PCL 414</td>
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<td>Management</td>
<td>5</td>
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<tr>
<td>or</td>
<td>Financial Administration and Budgeting</td>
<td>4</td>
</tr>
<tr>
<td>PCL 411</td>
<td>Public Policy Administration</td>
<td>4</td>
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</tbody>
</table>
PRE-LAW - POLITICAL SCIENCE

While no specific major is prescribed for admission to law school, many pre-law students do elect to major in political science. These students will be required to complete the department's requirements for the degree Political Science/Pre-Law, including a core program comprising:

PCL 201  American National Government  4
PCL 302  Scope and Methods of Political Science  4
or
PCL 303  Principles of Political Science  4
CJR 302  3-4
  or any course in law
JCL 475  Judicial Behavior  4

The table below illustrates the requirements for a major in Political Science:

AREAS  Q.H.
Environmental Studies Program  69
  Basic (54)
  Advanced (15)
Major Area Credits  48
Electives  63
  Primarily to be selected from upper level courses outside the Department, with the approval of the student's advisor.

TOTAL QTR. HOURS REQUIRED  180

The Department of Political Science offers a program of study leading to the degree Master of Public Policy.
Information concerning admission and degree requirements may be obtained by contacting the chairman, Department of Political Science.

**MAJOR IN PSYCHOLOGY**

Chairman: Abbott, Bldg. LR Suite 115, Phone 275-2216, 275-2231


**BACHELOR OF ARTS IN PSYCHOLOGY**

The major in psychology consists of 47 quarter hours, including the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>PSY 201</td>
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<td>General Psychology</td>
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<tr>
<td>PSY 301</td>
<td>Basic Learning Processes</td>
<td>4</td>
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<tr>
<td>PSY 303</td>
<td>Physiological Psychology</td>
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<tr>
<td>PSY 309</td>
<td>Personality Theory</td>
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<tr>
<td>PSY 411</td>
<td>Statistical Methods in Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 495</td>
<td>Research Methods</td>
<td>3</td>
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</table>

The remaining 23 quarter hours of psychology may be taken according to the interests of the student and with the agreement of his advisor.

Students expecting to enter graduate school should seriously consider electing at least one year of a foreign language.

The table below illustrates the requirements for a major in Psychology:

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Q.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Studies Program</td>
<td>69</td>
</tr>
<tr>
<td>Basic (54)</td>
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<td>Advanced (15)</td>
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<td>Major Area Credits</td>
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<td>Psychology (47)</td>
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<td>Allied Courses (11)</td>
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<tr>
<td>Electives</td>
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<td>Primarily to be selected from upper level courses outside the Department, with the approval of the student's advisor.</td>
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**TOTAL QTR. HOURS REQUIRED 180**

**SUGGESTED PROGRAM FOR PSYCHOLOGY MAJORS**

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Fall</th>
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<th>Spring</th>
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<tbody>
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<td>COMP 101</td>
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<td>SPE 101</td>
<td>PSY 301</td>
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<tr>
<td>3</td>
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<tr>
<td>PSY 495</td>
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<tr>
<td>3</td>
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<tr>
<td>TOTAL</td>
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**SECOND YEAR**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
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<tbody>
<tr>
<td>HIST (any)</td>
<td>PSY 305</td>
<td>BIOL 360</td>
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<td>PHYS (any)</td>
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<td>PHI 105</td>
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<td>PSY 303</td>
<td>PSY 495</td>
<td>PSY 308</td>
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<td>4</td>
</tr>
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<td>ZOO 100</td>
<td>PSY 321</td>
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<tr>
<td>TOTAL</td>
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</tbody>
</table>

16
MASTER OF SCIENCE IN PSYCHOLOGY

The Master's program in Psychology currently emphasizes training in both Industrial and Community Psychology. Both programs should require two years of full-time attendance to complete and are designed to prepare students for positions as master's level psychologists working in industrial settings or community agencies. Emphasis in both programs is on an individual being prepared for an applied position at the completion of the program.

Admission to the program will be made on the basis of the undergraduate transcripts, Graduate Record Examination, three letters of recommendation and a student's interest in pursuing a career at the master's level in psychology.

The degree in Community Psychology requires the completion of 71 quarter hours, a master's project (not thesis), and a minimum of a one quarter internship. The emphasis in Industrial requires 67 quarter hours and a quantitative research thesis.

Three major exams are required in each program: A qualifying examination administered at the end of a student's first year and covering general psychology, a comprehensive examination administered at the end of the student's second year and covering all applied areas of the program, and a final oral examination in defense of thesis or master's project. The qualifying, comprehensive, and final oral examinations may not be taken more than two times each.

The Basic Core in both major areas consists of approximately 30 hours and must be completed before any advanced work may be undertaken. In addition, the qualifying examination must be passed prior to enrollment in any of the advanced core courses, and all core course work must be completed before internship may begin.

INDUSTRIAL PSYCHOLOGY
Basic Core (25 hours): PSY 606, PSY 683, PSY 684, PSY 686, PSY 695 (01, 02, 03).
Advanced Core (19)hours:
PSY 650, PSY 651, PSY 660, PSY 670, PSY 699.

COMMUNITY PSYCHOLOGY
Basic Core (31 hours): PSY 683, PSY 684, PSY 685, PSY 686, PSY 688, PSY 671, PSY 672, PSY 695.
Advanced Core (29 hours):
PSY 664, PSY 665, PSY 666, PSY 675, PSY 676, PSY 677, PSY 678, PSY 698.

SUGGESTED PROGRAM FOR MASTER'S DEGREE IN PSYCHOLOGY

COMMUNITY PSYCHOLOGY

FIRST YEAR
Fall
PSY 683
PSY 686
PSY 695
Winter
PSY 671
PSY 684
PSY 687
Spring
PSY 664
PSY 672
PSY 688

SECOND YEAR
Fall
PSY 665
PSY 673
PSY 678
Winter
PSY 666
PSY 675
PSY 676
Spring
PSY 698
Internship
INDUSTRIAL PSYCHOLOGY

FIRST YEAR
Fall       Winter       Spring
PSY 695    PSY 606      PSY 610
PSY 683    PSY 615      PSY 660
PSY 686    PSY 684      PSY 681
                  PSY 695

SECOND YEAR
Fall       Winter       Spring
PSY 641    PSY 640      PSY 670
PSY 650    PSY 651      PSY 682
PSY 661    PSY 680      PSY 699
                  PSY 699

RADIO-TELEVISION (See Communication)

MAJOR IN SOCIOLOGY

Chairman: Unkovic Bldg. LR 118, Phone 275-2227
Faculty: Allen, Austin, Brock, Brown, Dees, Hodgin,
         Jones, Miller, O'Neill, Smith Strong, Tropf,
         Wright.

The major in sociology consists of 47 quarter hours,
including the following courses:

SOC 201  General Sociology  3
SOC 202  General Sociology  3
SOC 304  Development of Social Thought  4
or
SOC 306  Modern Sociological Thought  4
SOC 311  Introductory Anthropology  4
SOC 495  Undergraduate Research Methods  4
STAT 201  Principles of Statistics  4

TOTAL QTR. HOURS REQUIRED: 22

The remaining quarter hours may be taken in other
sociology courses, according to the interests of the student
and with the concurrence of his or her advisor.

Recommended electives for sociology majors are as follows:

ACCY 307 Accounting Concepts  5
COMP 101 Introduction to Computer Science  3
ENG 103 Current Literature (PR: ENG 101 or
equivalent)  3
ENG 410 Contributions of Minority Groups to
American Literature  3
EDTA 206 Human Development (EDTA 307
recommended concurrently)  3
EDTA 307 Teaching Analysis (EDTA 206
Recommended concurrently)  5
LENF 201 Law Enforcement  5
LENF 401 Selected Problems in Law Enforcement
Management (PR: ECON 203)  5
MGMT 301 Congress and the Legislative Process
(PR: PCL 201, 203 or C.I.)  4
PCL 310 Metropolitan Politics (PR: PCL 201, 203,
or consent of instructor)  4
PCL 413 Applied Psychology  4
PSY 300 Psychology of Adjustment  4
PSY 306 Social Psychology (PR: PSY 201, 202)  4
SPE 363 Group Discussion and Interaction  4
SPE 462 Attitude Formation and Change (PR:
SPE 360 or C.I.)  4

Students enrolled in the anthropology concentration must
take the following courses as part of the required 47 hours:
(SOC 201, 310 and 311 are prerequisites for SOC 314,
315, 316, and 402).

SOC 310 Introductory Anthropology  4
SOC 311 Introductory Anthropology  4
SOC 315 Physical Anthropology  4
SOC 316 Comparative Social Organization  4
SOC 402 Method and Theory in Anthropology  4

TOTAL QTR. HOURS REQUIRED: 20

Recommended electives for sociology majors in the anthropology
concentration are as follows:

BIOL 360 Genetics (PR: BIOL 100)  4
COMP 101 Introduction to Computer Science  3
ENG 371 Principles of Linguistics  3
GEOL 100 Introductory Geology  3
GEOL 110 Introductory Geology Laboratory
(PR: GEOL 100 or 101)  1
PSY 308 Social Psychology (PR: PSY 201, 202)  4
PSY 309 Personality Theory (PR: PSY 201, 202)  4
STAT 301  Fundamentals of Probability and Statistics  4
(PR: MATH 110)
SOC 307  Sociology of Religion (PR: SOC 201)  4
SOC 308  Ethnology of North American Indians  4
SOC 309  Plains Indians of North America  4
SOC 312  Old World Prehistory (PR: SOC 310, 311 or consent of instructor)  4
SOC 313  New World Prehistory (PR: SOC 310, 311 or consent of instructor)  4
SOC 336  Social Stratification (PR: SOC 201)  4
SOC 353  Culture and Personality (PR: SOC 201)  4

Students enrolled in the social welfare concentration must take the following courses with specific welfare content as part of the required 48 quarter hours (SOC 201 is a prerequisite for all the following courses which must be taken in numerical sequence):

SOC 340  Social Welfare: A Social Institution  4
SOC 341  Social Work: Principles and Methods  4
SOC 342  Government and Social Welfare  4
SOC 343  The Community and Social Welfare  4
SOC 349  Human Growth and Development  4
SOC 350  Interviewing in Social Work Practice  4
SOC 412  Field Experience and Seminar  15
SOC 494  Independent Study  4

TOTAL QTR. HOURS REQUIRED: 53

Recommended electives for sociology majors in social welfare concentration are as follows:

PCL 201  American National Government  4
PCL 301  American State and Local Government  4
(PR: PCL 201, 203 or C.I.)
PCL 410  Public Administration (PR: PCL 201, 203 or C.I.)  4
PSY 201  General Psychology  3
PSY 202  General Psychology  3
PSY 300  Applied Psychology  4
PSY 308  Social Psychology (PR: PSY 201, 202)  4
PSY 309  Personality Theory (PR: PSY 201, 202)  4
PSY 310  Abnormal Psychology (PR: PSY 201, 202)  4
PSY 313  Developmental Psychology  4

The table below illustrates the requirements for a major in sociology:

AREAS
Environmental Studies Program
Basic (54)
Advanced (15)

Major Area Credits
47

Electives
64

Primarily to be selected from upper level courses outside the Department with the approval of the student’s advisor.

TOTAL QTR. HOURS REQUIRED
180

SUGGESTED PROGRAM FOR SOCIOLOGY

FIRST YEAR

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<tr>
<th>Fall</th>
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<th>Spring</th>
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<td>SOC 202  3</td>
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SECOND YEAR

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<th>Spring</th>
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<td>COMP 101  4</td>
<td>SOC 311  4</td>
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<td>SOC 304  4</td>
<td>PSY 308  4</td>
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<td>SOC 331  4</td>
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THIRD YEAR

<table>
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<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 322  3</td>
<td>HIST 313  4</td>
<td>HIST 324  4</td>
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<td>ENG 301  3</td>
<td>COM 301  4</td>
<td>SOC 325  4</td>
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<td>ECON 307  3</td>
<td>SOC 317  4</td>
<td>SOC 335  4</td>
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<td>SOC 320  4</td>
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<td>SOC 316  4</td>
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FOURTH YEAR

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
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<tr>
<td>HUM 415  4</td>
<td>ENGR 481  3</td>
<td>EDEL 482  3</td>
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<td>SOC 495  4</td>
<td>SOC 407  4</td>
<td>ENG 471  3</td>
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<td>SOC 360  4</td>
<td>SOC 411  4</td>
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<td>SOC 401  4</td>
<td>ENG 371  3</td>
<td>PCL 403  4</td>
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<td>TOTAL  16</td>
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</tbody>
</table>
COURSE DESCRIPTIONS

CLASSIFICATION OF COURSES

The University course numbering system is as follows:

100-299 are freshman and sophomore level courses and are designed primarily for these students.

300-499 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 400-499 courses may serve the needs of individual graduate students.

500-599 are beginning graduate and advanced undergraduate level courses - open to graduate students and those seniors who receive approval of the appropriate Dean(s).

600-699 are beginning graduate and professional level courses open only to graduate students.

SPECIAL COURSES

In addition to the regular courses listed in this bulletin, the following special courses may be available. Consult your academic advisor for details.

<table>
<thead>
<tr>
<th>Undergraduates</th>
<th>Grad 1</th>
<th>Grad &amp; Prof</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 400</td>
<td>500</td>
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<tr>
<td>Special Topics</td>
<td>391 491</td>
<td>591 691</td>
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<tr>
<td>Seminar</td>
<td>392 492</td>
<td>592 692</td>
</tr>
</tbody>
</table>

Special Readings 393 493 593 693
Independent Study 394 494 594 694
Research Methods 495 595 695
Research Planning 496 596 696
Research 497 597 697
Research Report 498 598 698
Thesis 499  699

These courses may be assigned variable credit. Some may be repeated upon approval.

PR: PREREQUISITE
A course in which credit must be earned prior to enrollment in the listed course.

CR: COREQUISITE
A course which must be taken concurrently with or prior to the listed course.

C.I.: 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:

GEOL 201 4 (2, 4) W
Physical Geography

Geology 201 carries four hours credit but requires six contact hours: two in class and four in laboratory or field work. It is scheduled to be offered in the Winter Quarter.

Quarter designation; F = Fall; W = Winter; S = Spring; Su = Summer.

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.
COLLEGE OF
BUSINESS ADMINISTRATION

ACCOUNTANCY

ACCY 211  4 (4, 0) F, W, S
Basic Concepts: Accounting as a device for measurement and control of business activity. An introduction to the basic concepts and principles; the analysis and recording of transactions; preparation of financial statements; accounting systems and procedures.

ACCY 212  5 (5, 0) F
Basic Concepts: PR: ACCY 211. A continuation of ACCY 211. Accounting for partnerships and corporations; managerial techniques such as cost control and budgeting.

ACCY 307  5 (5, 0) F
Accounting Concepts: PR: Junior standing. (Not open to accountancy majors.) Emphasis is on internal reports for managerial planning and control and on financial statements for interested parties external to the business organization. Credit may not be earned in both ACCY 307 and the ACCY 211, 212 sequence.

ACCY 308  5 (5, 0)
Accounting for Engineers: PR: Junior standing. Industrial accounting, estimated costs, budget procedures and records useful to the engineer. Use of accounting and cost control as tools. Enrollment restricted to engineering students.

ACCY 311  4 (4, 0) F

ACCY 312  5 (5, 0) W

ACCY 321  3 (3, 0) F
Cost Accounting: PR: ACCY 212 or 307. The elements of cost recording. The basic cost concept. The importance of cost determination and recording.

ACCY 322  3 (3, 0) W

ACCY 341  3 (3, 0)

ACCY 411  3 (3, 0) S
Advanced Accounting: PR: ACCY 312. Complex cases in partnership formation, operation, expansion, and liquidation. Installation sales; consignments; home and branch relationships; mathematics of compound interest.

ACCY 412  3 (3, 0) F

ACCY 413  3 (3, 0) W
Advanced Accounting: PR: ACCY 312 or C.I. Cases of enterprises in distress; estates and trusts. Also a study of the general and special funds related to municipal accounting and non-profit organizations.

ACCY 433  3 (3, 0) F
Auditing: PR: ACCY 312. The audit concept. Understanding evidence as applied to the audit. Fundamental techniques, practices and procedures.

ACCY 434  3 (3, 0) W
Auditing II: PR: ACCY 433. A continuation of ACCY 433. Further examination of current auditing practices and procedures, including statistical sampling. Preparation of audit reports.

ACCY 451  3 (3, 0) W

ACCY 452  3 (3, 0) S

ACCY 461  3 (3, 0) S
Computer Applications to Accounting Problems: PR: COMP 303 and ACCY 312. The purpose of the computer in financial management. Its use as part of the accounting process. Place of the computer in present day accounting, budgeting and auditing matters.

ACCY 501  4 (4, 0)
Financial Accounting Concepts: PR: Acceptance into the MBA Program. The conceptual background for financial statements for external purposes including problems of the accounting period, the accrual concept and changing price levels, etc.

ACCY 601  3 (3, 0)
Accounting Analysis: PR: Graduate standing and ACCY 501 or one year of accounting. (Not open for accounting majors.)
Accounting as an information and measurement system for internal planning and control; concepts and analytical techniques for accumulating costs of products and services.

BUSINESS ADMINISTRATION

BADM 101  4 (4, 0)
Business: Survey of managerial divisions of finance, production, personnel, and marketing in business. Business terminology and overall structure of business in its environment. Historical and economic prospects are considered. This course open only to students at freshman or sophomore level.

BADM 301  3 (3, 0) F, W
Business Concepts: PR: Junior standing. The role of business and the environment in which it operates are considered. The responses business makes to freedom, ownership, the market economy and government are discussed. This course satisfies the Advanced Environmental Studies requirement. Cannot be used for credit for BSBA degree.

BADM 302  3 (3, 0)
Personal Investments: PR: Junior standing. Management of personal finance; life insurance and home ownership as investments; owning a business as an investment; income protection; investable funds; vehicles for investment; financial institutions; aids to investment; investment companies. Cannot be used for credit for BSBA degree. This course satisfies the Advanced Environmental Studies requirement.

BADM 371  3 (3, 0) F, W, S
Business Law: PR: Junior standing. The presentation of law as an expanding social and political institution in the environment of the business enterprise. Consideration given to the development and sources of law, the judicial system, torts, crimes, and contracts.

BADM 372  3 (3, 0) W

BADM 373  3 (3, 0) S
Business Law: PR: BADM 371 (BADM 372 desirable). A study of the legal concepts underlying the transfer and sale of goods and commercial paper, including an examination of the law of sales, commercial paper and secured transactions and their interaction with the commercial environment.

BADM 374  3 (3, 0)
Consumer Protection and Antitrust Law: PR: Junior standing or C.I. An analysis of consumer protection and antitrust activities, legislation, and court decisions in reference to social and political influences on business.

BADM 444  3 (3, 0) W
International Business Operation: PR: Senior standing or C.I. An integration of economics and the functional areas of business focused upon the problems of managing international business operations. Economic, legal, functional and administrative problems are studied through cases and literature emphasizing financial and marketing problems.

BADM 474  3 (3, 0)
Business Law, Interests in Property and Liability: PR: BADM 371 or C.I. Includes bailments, real and personal property, and security interests therein, insurance, suretyship and guaranty.

BADM 485  4 (4, 0) F, W, S
Business Policies: PR: Senior standing and completion of all other business core course requirements or C.I. A study of problems confronting businessmen. The student will be expected to utilize the subject matter contained in the business core courses and his major in the analysis of business problems. A written case researched by the student is required.

BADM 490  2 (2, 0) F, W, S
Senior Seminar: Business in Human Affairs: Business issues and problems as they relate to human affairs. This course primarily intended for the senior student, is offered as one of the Advanced Environmental Studies seminars. Not open to the student majoring in the College of Business Administration.

BADM 501  3 (3, 0)

BADM 601  3 (3, 0)
Operations Research Models for Business: PR: Graduate Standing and ECON 521 or equivalent. Quantitative techniques useful for the solution of business problems. Mathematical model building to aid the decision-making process is stressed.

BADM 611  3 (3, 0)

BADM 621  3 (3, 0)
Business Policy and Responsibility: PR: Graduate Standing, and all foundation courses or equivalents. Functions and responsibilities of management, motivation of the businessman and factors governing business decisions.

BADM 637  3 (3, 0)
Simulation of Dynamic Systems: PR: Graduate Standing. A survey of techniques for conducting simulation experiments on digital computers. These experiments involve mathematical and logical models of a business or economics system.

ECONOMICS

ECON 201  3 (3, 0) F, W, S, Su
Economics and Man: An introductory course designed to provide both the business and non-business student with a terminal course in the fundamentals of economics, including economic methodology, microeconomics, and macroeconomics.
ECON 202
Principles of Microeconomics: PR: ECON 201. The determination of prices in a market economy; their role in allocating consumer and producer goods and in distributing incomes. Efficiency of markets and evaluation of public policies designed to improve efficiency.

ECON 203
Introduction to Aggregate Economics: PR: ECON 201. A course providing further study in the area of national income accounting, income and employment theory, business fluctuations, and U.S. economic policy.

ECON 301
Intermediate Price Theory: PR: ECON 202 and ECON 203. Theoretical analysis of the determination of product and factor prices under different market structures.

ECON 307
Economic History of the United States: PR: Junior standing or C.I. An analysis of the historical growth and development of the American economy.

ECON 311
Intermediate Money, Income and Employment Theory: PR: ECON 202 and ECON 203. Theoretical analysis of the determination of national income and employment, including an examination of the monetary system.

ECON 321

ECON 328

ECON 331
Economics of Labor: PR: ECON 202 and ECON 203. A survey of the growth, structure, objectives, and collective bargaining practices of organized labor groups.

ECON 332
Manpower and Human Resources: PR: ECON 202 and ECON 203. Examines labor as a human resource or human capital. Special emphasis placed upon the changing role of manpower and manpower policies.

ECON 341
International Economics: PR: ECON 202 and ECON 203. Fundamental principles of international trade and foreign exchange, including the balance of payments and problems of foreign economic policy.

ECON 361
Agriculture in the American Economy: PR: ECON 202 and ECON 203. Agriculture in a developed economy. The nature of agricultural markets, their structure and national farm policy issues.

ECON 371
Mathematical Economics: PR: ECON 203 and MATH 223. An introduction to the mathematical tools of modern economic analysis.

ECON 381
Economics of Public Utilities: PR: ACCY 211 and ACCY 212 or ACCY 307, and ECON 202, ECON 203 or C.I. The nature of public utilities, the economics of rate determination, and regulatory policy.

ECON 401
Managerial Economics: PR: ECON 202 and ECON 203. The uses of economic analysis in economic decision-making and business policy formulation.

ECON 411
Comparative Economic Systems: PR: ECON 202 and ECON 203. An analysis of the fundamental institutions of the American economic system and a comparison of the American economic system with other economic systems.

ECON 421

ECON 431
Public Finance in the American Economy: PR: ECON 202 and ECON 203. 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.

ECON 432
Fiscal Economics: PR: ECON 431. The economics of government spending and taxation; analysis of the fiscal role and instruments of government and their effects on the economy. Fiscal policy, intergovernmental fiscal relationships, inflation, debt.

ECON 435
Monetary Theory and Policy: PR: FIN 331. 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.

ECON 441

ECON 451
### ECON 461  
**Business and Government:** PR: ECON 202 and ECON 203. A survey of the most significant public policies affecting business firms.

### ECON 471  
**History of Economic Thought:** PR: ECON 202 and ECON 203. A study of the leading ideas of the major contributors to the development of economic thought.

### ECON 481  
**Economics of Urban Areas:** PR: ECON 202 and ECON 203. An analysis of the economic problems arising from and associated with the growth of cities and suburban areas within metropolitan districts.

### ECON 501  
**Economic Concepts:** PR: Acceptance into the M.B.A. Program. Introduction to economic analysis, including the theory of the market, supply, demand and price determination; income distribution; aggregate income and employment determination.

### ECON 521  
**Statistics of Business and Economics:** PR: Acceptance into the M.B.A. Program. Statistical theory and problems relating to business and economics including time series and correlation theory, index number theory and statistical inference.

### ECON 601  
**Economic Analysis of the Firm:** PR: Graduate Standing and ECON 501 or equivalent. Commodity price and output determination; factor price determination and functional income distribution; analysis of different types of markets.

### ECON 611  
**Aggregate Economics-Income, Employment and Growth:** PR: Graduate standing and ECON 501 or equivalent. Analysis of the determinants of national output, income and employment levels; theory of economic growth and progressive equilibrium in an economy.

### ECON 621  
**Statistical Models for Business:** PR: Graduate Standing and ECON 521 or equivalent. The theory of model analysis including the validation of model assumptions through Monte Carlo analysis and advanced statistical techniques.

### ECON 631  
**Public Finance and Financial Policy:** PR: Graduate Standing and ECON 501 or equivalent. Analysis of the fiscal role and instruments of government and their effects on the economy; taxation, debt, and fiscal policy.

### ECON 635  
**Seminar in Labor Problems:** PR: Graduate Standing and ECON 501 or equivalent. Philosophy of management-labor problems, survey of pertinent labor legislation; analysis of selected labor problems.

### ECON 643  
**The Soviet Economy: Decision Making and Rationality:** PR: Graduate standing and ECON 501 or equivalent. Examination and analysis of the functions, structure, and operation of the economic systems of the Soviet Union and other East European command economies.

### FINANCE

#### FIN 301  
**Finance:** PR: ACCY 212 or ACCY 307, ECON 202 and ECON 203. Fundamentals of obtaining and administering funds to meet short-term and long-term capital requirements.

#### FIN 311  
**Risk and Insurance:** PR: Junior Standing or C.L. Principles and methods of risk reduction and specialization, with particular emphasis on insurance.

#### FIN 321  
**Investments:** PR: FIN 301 or C.L. Principles of determining investment policy for individual and institutional portfolios.

#### FIN 331  
**Money and Banking:** PR: ECON 203 or C.L. The nature of money, the functioning of the commercial banking system and its relation to the level of economic activity, and the activities of the Federal Reserve System and Treasury.

#### FIN 341  
**Real Estate:** PR: Junior standing. Basic principles of real estate ownership, its use and transfer, brokerage, management, legislation, and importance to the economy.

#### FIN 411  
**Financial Institutions:** PR: FIN 301. The operation of financial institutions and an analysis of their role in the economy.

#### FIN 421  
**Security Analysis:** PR: FIN 301 and FIN 321. The problems of selecting securities for various investment purposes.

#### FIN 431  
**Financial Management:** PR: FIN 301. Analytical techniques for dealing with financial problems and their application to corporate financial management.

#### FIN 501  
**Financial Concepts:** PR: Acceptance into the MBA Program. Effects of financial decisions upon the firm, interrelationships of these effects, and alternatives available to financial managers in meeting financing needs of the firm.

#### FIN 601  
**Capital Management and Analysis:** PR: Graduate standing and FIN 501 or equivalent. Financial planning, valuation, sources of long-term capital, concepts of cost of capital and capital budgeting.

#### FIN 611  
**Financial Management of Current Operations:** PR: Graduate
standing and FIN 501 or equivalent. Management of current assets and current liabilities. Special problems associated with expansion, contraction, merger and failure.

FIN 621  

FIN 631  
Analysis of Investment Opportunities: PR: Graduate standing and FIN 501 or equivalent. Techniques for evaluating securities, investment decision making, and portfolio management.

**MANAGEMENT**

MGMT 301  
Management: Fundamentals of management underlying the solution of problems relating to the organization and operation of business enterprises.

MGMT 324  
Production Management: PR: Sophomore standing. Principles and methods of production viewed from a managerial decision-making level. (Same as IEMS 324.)

MGMT 364  
Personnel Management: PR: MGMT 301. 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.

MGMT 401  
Organization Theory: PR: MGMT 301. Elements in organizations and the processes by which they develop and influence behavior are considered.

MGMT 402  

MGMT 403  
Managing Decision Systems: PR: MGMT 402. An introduction to the managerial competencies required to assure effective and efficient operation of a decision system after its installation.

MGMT 424  
Production Management Problems: PR: MGMT 324. Problems in the management of industrial enterprise. Management principles and mathematical analysis applied to manufacturing; product development and production; materials and production control; employee relations.

MGMT 464  
Personnel Problems: PR: MGMT 364. Case studies in personnel problems directed toward the application of personnel management theory and concepts to organization problems.

MGMT 465  
Industrial Relations: PR: MGMT 301. The impact of trade unionism on industrial relations; current problems, conflicts and trends; the development of managerial approaches to achieve labor-management cooperation.

MGMT 466  
Human Relations in Management: PR: MGMT 301. The individual, interpersonal and group relations and intergroup and organizational problems in business.

MGMT 501  

MGMT 601  
Planning and Control Analysis: PR: Graduate standing and MGMT 501 or equivalent. Emphasizes elements of the planning and control processes including objectives, action programs and control procedures. Discusses integration of the two processes.

MGMT 611  
Analysis of Organizational Behavior: PR: Graduate standing and MGMT 501 or equivalent. The analysis of human behavior in organizations in terms of the individual, small group, intergroup relationships, and the total organization.

MGMT 621  
Group Decisions and Analysis: PR: Graduate standing and MGMT 501 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.

MGMT 650  
Evolution of Administrative Management: PR: Graduate standing and MGMT 501 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.

MGMT 656  
Research and Development Management: Graduate standing and MGMT 501 or equivalent. An examination of the function of Research and Development and the impact of technological innovation on our economic and social systems.

**MARKETING**

MKTG 301  
Marketing: Study of functions, institutions and basic problems in marketing of goods and services in our economy.

MKTG 326  
Consumer Market Behavior: PR: MKTG 301. 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.
MKTG 334  4 (4, 0)
Marketing Models and Logistics: PR: MKTG 301 and ECON 321. Qualitative and quantitative model building concepts applied to marketing problems with special emphasis on product planning, distribution, promotion strategy, and pricing problems.

MKTG 364  4 (4, 0)
Advertising Management: PR: MKTG 301. Analysis of field of advertising; purposes, techniques, media, organization, and role of research; economic and social aspects of advertising.

MKTG 384  5 (5, 0) F, W, S
Marketing Research: PR: MKTG 301 and ECON 321. Study of research procedures and techniques applicable to problem solving in marketing. The marketing management process is analyzed; the underlying concepts related to the information needed to serve the processes are explored; the incorporation of information resources into the management function is demonstrated.

MKTG 469  4 (4, 0)
Channels of Distribution Management: PR: MKTG 301. Study of marketing activities and relationship within channels of distribution. Major attention given to decision-making and formulation of policies appropriate for wholesalers, retailers, and vertically integrated marketing institutions.

MKTG 485  4 (4, 0)
Marketing Policies and Strategies: PR: MKTG 384 and C.I. Marketing problems and policies are explored with emphasis placed on the decision-making process.

MKTG 489  4 (4, 0)
Current Marketing Problems: PR: Senior standing, marketing major, and C.I. A course emphasizing the recognition and analysis of marketing problems arising from broad cultural, social, political, legal, economic, and competitive developments.

MKTG 501  4 (4, 0)
Marketing Concepts: PR: Acceptance into the M.B.A. Program. Study of functions, institutions and basic problems in marketing of goods in our economy.

MKTG 601  3 (3, 0)
Marketing Policy: PR: Graduate standing and MKTG 501 or equivalent. Marketing policy formulation and decision-making with respect to planning, pricing, promoting, and distributing.

MKTG 602  3 (3, 0)
Current Marketing Problems: PR: Graduate standing and MKTG 501 or equivalent. Analysis of marketing problems stemming from broad social, economic, and political developments. Topics treated cover broad classes of marketing institutions.

MKTG 604  3 (3, 0)
Sales Management and Control: PR: Graduate standing and MKTG 501 or equivalent. Emphasis is placed on the allocation and development of sales territories and the training, motivation, and supervision of a sales force.

QUANTITATIVE BUSINESS ANALYSIS

QBA 312  4 (4, 0)
Quantitative Analysis I: PR: MATH 320. Mathematical models and techniques used in the formulation, solution, and analysis of business problems. Linear, non-linear and dynamic programming, network, decision tree analysis; queueing, inventory, and decision theory. Computer applications.

QBA 313  4 (4, 0)
Quantitative Analysis II: PR: QBA 312. Continuation of QBA 312.

QBA 450  4 (4, 0)
Business Simulation: PR: MATH 320 and COMP 310. An introduction to simulating various aspects of the business enterprise. Topics include the simulation modeling process, applicable simulation languages, and model formulation, analysis, and validation.

QBA 451  4 (4, 0)
Quantitative Applications to Business Problems: PR: QBA 313 or C.I. Applications of quantitative analysis to complex business problems. Emphasis is on analyzing specific problem situations and deciding on appropriate quantitative techniques to be applied.
### BUSINESS EDUCATION — DEVELOPMENTAL

**EDBE 101**  
3 (3,1) F, W, S  
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.

**EDBE 102**  
3 (3,1) F, W, S  
Typewriting Production I: PR: EDBE 101 or equivalent. Continuation of development of skills in speed and accuracy and introduction to skill building procedures in communications production.

**EDBE 103**  
3 (3,1) F, W, S  
Typewriting Production II: PR: EDBE 102 or equivalent. Expansion of communications production development, speed and accuracy.

**EDBE 201**  
3 (3,1)  
Principles of Shorthand I: PR: Concurrent enrollment in EDBE 101 or equivalent. For students with no previous instruction in shorthand. Introduction to basic theory of Gregg Shorthand, vocabulary development, and speed building.

**EDBE 202**  
3 (3,1)  
Principles of Shorthand II: PR: EDBE 102 and EDBE 201 or equivalents. A continuation in the study of shorthand theory, vocabulary development, and speed building.

**EDBE 203**  
3 (3,1)  
Principles of Shorthand III: PR: EDBE 102 and EDBE 202 or equivalents. Development and refinement of sustained shorthand dictation, speed, and vocabulary.

**EDBE 301**  
3 (3,1)  
Shorthand Dictation: PR: EDBE 102 and EDBE 203 or equivalents. Continued development of shorthand dictation and introductory communications production.

**EDBE 302**  
3 (3,1)  
Shorthand Transcription: PR: EDBE 102 and EDBE 301. Gregg Shorthand dictation and refinement of communications production.

**EDBE 305**  
3 (3,1)  
Office Technology: PR: EDBE 102 or C.I. Basic operation and function of technological media in modern business offices.

**EDBE 406**  
3 (3,0)  

**EDBE 601**  
3 (3,0)  

**EDBE 602**  
3 (3,0)  

**EDBE 603**  
3 (3,0)  
Analysis, Trends and Research in Typewriting Instruction: PR: Rank III Certificate or C.I. Techniques, materials, and instructional media; psychological principles, evaluation, and special attention to a study of research and new trends of instruction.

**EDBE 604**  
3 (3,0)  

**EDBE 610**  
3 (3,0)  
Administration and Supervision of Business Education: PR: Rank III Certificate or C.I. Organization, administration, and supervision of Business Education.
EDBE 611 3 (3, 0)
Analysis of Instruction in Shorthand and Transcription: PR: Rank III Certificate or C.I. Techniques, materials, and instructional media; psychological principles, evaluation, and special attention to a study of research and new trends of instruction.

EDBE 612 3 (3, 0)
Analysis of Instruction in Office Technology: PR: Rank III Certificate or C.I. Techniques, materials and instructional media; psychological principles, evaluation, and special attention to a study of research and new trends of instruction.

EDBE 613 3 (3, 0)
Analysis of Instruction in Basic Business and Accounting: PR: Rank III Certificate or C.I. Techniques, materials, and instructional media; psychological principles, evaluation, and special attention to a study of research and new trends of instruction.

EDBE 614 3 (3, 0)
Coordination of Cooperative Office Business Education: PR: Rank III Certificate or C.I. A study of cooperative programs; organization and coordination of cooperative business education programs.

EDBE 615 3 (3, 0)
Improvement of Related Instruction in Cooperative Business Education: PR: Rank III Certificate or C.I. Techniques, materials, and instructional media; psychological principles, evaluation, and special attention to a study of research and new trends of instruction in related cooperative education study.

ELEMENTARY EDUCATION — DEVELOPMENTAL

EDEL 301 3 (2, 1) F, W, S
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.

EDEL 302 3 (2, 1) F, W, S
Mathematics Programs in the Elementary School: PR: EDEL 301. Analysis of teaching arithmetic, geometry and measurement; philosophy and objectives; instructional materials; current research and new curricula.

EDEL 306 3 (2, 1) F, W, S
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.

EDEL 307 3 (3, 0) F, W, S, Su
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.

EDEL 311 3 (3, 0) F, W, S
Basic Foundations of Reading: PR: Admission to Phase II or C.I. Introduction to reading; principles, procedures and organization, current practices; analysis of reading materials; correlation with child development; investigation of research.

EDEL 312 3 (3, 0) F, W, S
Reading in the Elementary School: PR: EDEL 311. Study of specific techniques and materials used to develop reading comprehension vocabulary and rate; organizing and directing a reading lesson; individual differences; evaluation procedures.

EDEL 315 3 (3, 0) F, W, S
Teaching Science in the Elementary School: PR: Admission to Phase II or C.I. Consideration of selected themes, problems, and concepts; organizing for instruction; techniques and activities; evaluation procedures.

EDEL 316 3 (3, 0) F, W, S
Elementary School Curriculum: PR: Admission to Phase III or C.I. Basic scope and sequence of the elementary school curriculum; philosophical concepts; techniques and materials for instruction; patterns of organization; planning for instruction.

EDEL 317 3 (3, 0) F, W, S
Teaching Social Science in the Elementary School: PR: EDTA 206 and EDTA 307. Organization, practice, and conduct of elementary school physical education with emphasis on teaching methods.

EDEL 401 3 (3, 0) F
Programs in Early Childhood Education: PR: Admission to Phase II or C.I. Overview of the philosophy, content, facilities, instructional materials, and activities appropriate for children ages 3, 4, and 5; current research and new curricula. Concurrent laboratory experiences.

EDEL 402 3 (3, 0) W
Language Arts in Early Childhood Education: PR: Admission to Phase II or C.I. Analysis of content of values and developmental role of language arts programs; application of instructional techniques; curriculum problems relating to reading readiness, perception and cognition.

EDEL 404 3 (3, 0) S
Organization of Instruction in Nursery-Kindergarten Education: PR: EDEL 401 or EDEL 402. Organization of instruction and methods in areas relating to social science, science, mathematics, health, creative arts, and physical education; development of creative manipulative devices. Concurrent laboratory experiences.

EDEL 405 5 (3, 2) F, W, S, Su
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.
### EDEL 406
Art in the Elementary School: Basic principles, purposes, scope and sequence; organization for instruction; evaluation of activities; selected art experiences.

### EDEL 407
Classroom Diagnosis and Treatment of Reading Difficulties: PR: EDEL 311 or EDEL 312 or equivalent. Principles and techniques of diagnosis and remedial teaching with the disabled reader; factors related to reading problems — physiological, psychological, cultural; materials for instruction.

### EDEL 408
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.

### EDEL 409
Social Science Programs in the Elementary School: PR: Admission to Phase II or C.I. Overview of the instructional program in the social sciences; philosophy and objectives; special problems; instructional materials; current research and new curricula.

### EDEL 415
Teaching Elementary School Health and Physical Education: PR: Admission to Phase II or C.I. Observation, organization, practice, and conduct of health and physical education activities in the elementary school.

### EDEL 456
Directed Study in Elementary Education: Qtr. Hrs. - 2-5 Continuation of EDEL 456. Workshop for the improvement of the elementary school curriculum. Open to in-service teachers.

### EDEL 482

### EDEL 530
Developmental Reading: PR: Rank III Certificate or C.I. Principles, procedures, organization, and current practices in the elementary reading program.

### EDEL 535
Classroom Diagnosis and Treatment of Reading Difficulties: PR: EDEL 530 or equivalent. Principles and techniques of classroom diagnosis and corrective teaching in reading. Consideration of instructional materials.

### EDEL 601
Elementary School Instructional Programs: 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.

### EDEL 604
Leadership in Elementary Education: PR: Rank III Certificate or C.I. Current issues with emphasis on the improvement of instruction, analysis of curriculum, and staff development procedures.

### EDEL 605
Problems in Classroom Teaching in the Elementary School: PR: Rank III Certificate or C.I. Identification and analysis of relevant major instructional problems in the elementary school.

### EDEL 606
Curriculum Design in Elementary Education: PR: Rank III Certificate or C.I. Design and construction of programs to meet needs of varying levels of student populations. (May be repeated.)

### EDEL 610
Trends in Elementary School Science Education: PR: Rank III Certificate or C.I. Analysis of historical development and current trends in science education research.

### EDEL 620
Trends in Elementary School Mathematics Education: PR: Rank III Certificate or C.I. Analysis of historical development and current trends in mathematics education research.

### EDEL 621
Diagnosis of Difficulties in Elementary School Mathematics: PR: EDEL 620. Study and uses of tests regarding the symptoms and causes of specific learning skills in mathematics.

### EDEL 622
Remediation of Difficulties in Elementary School Mathematics: PR: EDEL 621. Selection of materials and techniques for a remedial program based on individual diagnosis.

### EDEL 630
Trends in Elementary School Reading Education: PR: Rank III Certificate or C.I. Analysis of historical development and current trends in reading research.

### EDEL 632
Corrective Reading for Classroom Teachers I: PR: EDEL 535 or equivalent. A practicum for classroom teachers with emphasis on group diagnostic reading tests and classroom corrective techniques.

### EDEL 633
Corrective Reading for Classroom Teachers II: PR: EDEL 632 or equivalent. A continuation of EDEL 632.

### EDEL 635
Diagnosis of Difficulties in Reading: PR: EDEL 635 or equivalent. Administration and interpretation of individual tests. Consideration of physiological, psychological and environmental factors contributing to reading difficulties.

### EDEL 636
Diagnostic Reading Practicum: PR: EDEL 635 or equivalent. Evaluation of reading abilities and difficulties of children in the reading laboratory of the University. Preparation of individual case reports.
**EDEL 637**  
Remedial Reading Practicum: PR or CR: EDEL 636. Supervised remedial instruction with individual children. Selection of instructional materials and techniques; preparation of case progress reports; parent interviews.

**EDEL 640**  
Trends in Elementary School Language Arts Education: PR: Rank III Certificate or C.I. Analysis of historical development and current trends in language arts research.

**EDEL 641**  
Investigation in Children's Literature: PR: Rank III Certificate or C.I. Analysis of the various approaches available for learning through the utilization of children's literature.

**EDEL 650**  
Trends in Elementary School Social Science Education: PR: Rank III Certificate or C.I. Analysis of historical development and current trends in social science education research.

**EDEL 681**  
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.

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**EXCEPTIONAL CHILD EDUCATION**

**EDEX 511**  
4 (4, 0) F, Su  
Exceptional Children in the Schools: PR: Senior Standing or C.I. Characteristics, developmental patterns, educational problems, and appropriate educational programs for the exceptional child in Special Education.

**EDEX 512**  
4 (4, 0) F  
Educational Implications for the Speech and Language Disorders of Exceptional Children: PR: Senior Standing or C.I. Identification, evaluation, interpretation, and planning appropriate learning experiences to aid exceptional children with speech, hearing, and language disorders.

**EDEX 513**  
4 (4, 0)  
Fundamental Concepts of Mental Retardation: PR: Senior Standing or C.I. Characteristics, symptom groupings, diagnostic procedures, learning characteristics, and educational treatment procedures of the mentally retarded.

**EDEX 514**  
4 (4, 0)  
Psycho-educational Appraisal of Exceptional Children: PR: Senior Standing or C.I. Selection of performance objectives, diagnostic measures, prescriptive teaching programs, and progress evaluation procedures for individualizing instruction.

**EDEX 521**  
3 (3, 0)  
Classroom Organization for Teaching the Mentally Retarded: PR: Senior Standing, EDEX 514 or C.I. Special class organization, scheduling, utilizing materials, equipment; analysis of instructional procedures for teaching mentally retarded.

**EDEX 522**  
3 (3, 0)  
Curriculum Planning Procedures for the Educable Mentally Retarded: PR: Senior Standing, EDEX 513 and EDEX 514 or C.I. Appropriate curriculum experiences and adjustments; media use; development of pre-vocational skills of educable mentally retarded children.

**EDEX 523**  
3 (3, 0)  
Curriculum Planning Procedures for the Trainable Mentally Retarded: PR: Senior Standing, EDEX 513 and EDEX 514 or C.I. Curriculum experiences, media use, pre-vocational skills development for developmental levels of trainable mentally retarded children.

**EDEX 611**  
3 (3, 0)  
Homeschooling 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.

**EDEX 612**  
3 (3, 0)  
Occupational and Educational Information for Exceptional Children: PR: Rank III Certificate or C.I. World-of-work overview, occupational areas, occupational skills required for habilitative and rehabilitative community agencies for exceptional children.

**EDEX 621**  
3 (3, 0)  
Theories of Learning Disabilities of School Children: PR: Rank III Certificate or C.I. An introduction to etiology of learning disorders, with emphasis on environmental deprivation, sensory development, and other impairment.

**EDEX 622**  
3 (3, 0)  
Instructional Diagnosis of the Learning Disabled Child: PR: Rank III Certificate or C.I. Evaluation techniques for diagnosing learning disabilities related to development in the basic school skills areas.

**EDEX 623**  
3 (3, 0)  

**EDEX 624**  
3 (3, 0)  
Behavior Management Techniques with Exceptional Children: PR: Rank III Certificate or C.I. Study of pupil management techniques, including group and individual procedures, for modifying the learning behavior of exceptional pupils.

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**EDUCATION - GUIDANCE**

**EDGU 611**  
Qtr. Hrs. - 4  

**EDGU 612**  
Vocational and Career Development Procedures: PR: Rank III Certificate. Review of the forces which affect career choice and
shape personal development. Emphasis on the importance of parent-student-school interrelationships in making decisions.

EDGU 613

EDGU 614
Counseling With School Children: PR: EDGU 611 and 613. Supervised counseling in secondary and/or elementary schools emphasizing competence in (1) individual counseling; (2) working with groups; (3) tests in educational- vocational counseling.

LIBRARY SCIENCE

EDLS 301
Foundations of Librarianship: PR: C.I. Survey of libraries and librarianship, origin, services, problems and current library literature. Library services on all levels and related terminology.

EDLS 321

EDLS 380
Library Resources and Materials: Use of the library, basic reference material, library services and research methods.

EDLS 421
Administration of the Library Media Center: PR: EDLS 301. Principles and practices of administration applied to elementary and secondary school library media centers. Methods of teaching the use of the library.

EDLS 431

EDLS 441
Reference Materials and Services: PR: C.I. Selection, evaluation and use of basic print and non-print reference materials.

EDLS 451

EDLS 452
Instructional Media Production: PR: EDLS 451. Selection, evaluation and production of instructional materials with emphasis on projected materials, display and presentation techniques.

EDLS 521

EDLS 531

EDLS 532

EDLS 541

EDLS 551
Instructional Technology and the Curriculum: PR: EDLS 451. Use and selection of instructional materials as they apply to the curriculum in elementary and secondary schools.

EDLS 611

EDLS 641
Reference Sources: PR: EDLS 441. Selection, evaluation and use of advanced and specialized reference materials in various subject fields.

MUSIC EDUCATION

EDME 401
Elementary School Music Instructional Analysis: PR: EDTA 206 and EDTA 307. Instructional planning, sources of information, instructional techniques, evaluation, and organizational and administrative procedures in the elementary school music program.

EDME 402
Secondary School Music Instructional Analysis: PR: EDTA 206 and EDTA 307. Instructional planning, teaching techniques, evaluation procedures, sources of information and current trends in the general music program for middle, junior and senior high schools.

EDME 403
Instrumental Music Instructional Analysis: PR: EDTA 206 and EDTA 307. Organization and administration of the instrumental music program; sources of information, instructional aids and materials, rehearsal procedures, conducting techniques, evaluation procedures, and performance considerations.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPE 323</td>
<td>Instructional Analysis in Team Sports</td>
<td>2 (1, 1) F, W, S, Su</td>
<td>PR: Sophomore standing. Analysis of neuromuscular performances and optimal approach to specific learning patterns in team sports.</td>
</tr>
<tr>
<td>EDPE 324</td>
<td>Instructional Analysis in Tennis</td>
<td>2 (1, 1) F, W, S, Su</td>
<td>PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific motor learning patterns.</td>
</tr>
<tr>
<td>EDPE 325</td>
<td>Instructional Analysis in Aquatics</td>
<td>2 (1, 1) F, S, Su</td>
<td>PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific motor learning patterns.</td>
</tr>
<tr>
<td>EDPE 326</td>
<td>Instructional Analysis in Gymnastics and Tumbling</td>
<td>2 (1, 1) F, S, Su</td>
<td>PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific motor learning patterns.</td>
</tr>
<tr>
<td>EDPE 327</td>
<td>Instructional Analysis in Golf</td>
<td>2 (1, 1) F, W, S, Su</td>
<td>PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific learning patterns.</td>
</tr>
<tr>
<td>EDPE 328</td>
<td>Instructional Analysis in Wrestling (M)</td>
<td>2 (1, 1) F, S, Su</td>
<td>PR: Sophomore standing. Mechanical analysis of neuromuscular performances and optimal approach to specific motor learning patterns.</td>
</tr>
<tr>
<td>EDPE 329</td>
<td>Choreography of Contemporary Dance (W)</td>
<td>2 (1, 1) F, S</td>
<td>PR: Sophomore standing. Dance production as an art form.</td>
</tr>
<tr>
<td>EDPE 330</td>
<td>Instructional Analysis of Rhythmics</td>
<td>2 (1, 1) F, W, S, Su</td>
<td>PR: Sophomore standing. Analysis of rhythm and rhythmic activities as they relate to teaching physical education.</td>
</tr>
<tr>
<td>EDPE 360</td>
<td>School and Community Recreation</td>
<td>3 (2, 1) F, W, S, Su</td>
<td>PR: Admission to Phase II or C.I. Knowledge and skills of after school activity and summer recreational programs.</td>
</tr>
<tr>
<td>EDPE 407</td>
<td>Family Living Concepts</td>
<td>5 (5, 0)</td>
<td>The ideas and principles of healthy family living.</td>
</tr>
</tbody>
</table>
EDPE 604  3 (3, 0)
Administration in Physical Education: PR: Rank III Certificate or C.I. Study of current problems in the administration of school physical education programs.

EDPE 621  5 (3, 2)
Physiology of Exercise — Environmental: PR: Rank III Certificate or C.I. A study of physiological adaptation resulting from prescribed physical activity programs.

EDPE 624  3 (2, 1)
Rhythms: PR: Rank III Certificate or C.I. Instructional analysis in classical and modern rhythms.

EDPE 631  5 (3, 2)

EDPE 632  3 (2, 1)
Perceptual Motor Development: PR: EDTA 614 or C.I. Study of the relationship between perceptual motor development and learning. Evaluation of physical activities designed to improve perceptual motor skills.

EDPE 660  3 (3, 0)
School Recreation: PR: Rank III Certificate or C.I. A study of recreational programs related to the public schools.

EDPE 680  3 (2, 1)
Kinesiologic Analysis of Individual Activities: PR: Rank III Certificate or C.I. Analytical techniques of kinesiology and their methods of application to individual motor activities.

EDPE 681  3 (2, 1)
Kinesiologic Analysis of Team Activities: PR: Rank III Certificate or C.I. Analytical techniques of kinesiology and their methods of application to team motor activities.

PROFESSIONAL LABORATORY — APPLICATION

EDPL 320  3 (0, 6) F, W, S
Elementary School Student Teaching - Block A: PR: EDTA 206 and EDTA 307. Junior year student teaching in an elementary school under the supervision of a certified classroom teacher.

EDPL 321  3 (0, 6) F, W, S
Elementary School Student Teaching - Block B: PR: EDPL 320. Junior year student teaching in an elementary school under the supervision of a certified classroom teacher.

EDPL 330  3 (0, 6) F, W, S

EDPL 408  3 (0, 6) F, W, S
Teaching Strategies: 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.

EDPL 421  9 (0, 18) F, W, S
Elementary School Student Teaching - Block C: PR: EDPL 321. Senior year student teaching in an elementary school under the supervision of a certified classroom teacher.

EDPL 430  9 (0, 18) F, W, S
Secondary School Student Teaching - Block C: PR: EDPL 330. Senior year student teaching in a secondary school under the direction of a certified classroom teacher.

EDPL 551  1-12 (0, 1-12)
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.

EDPL 558  4 (3, 1)
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.

SECONDARY EDUCATION — DEVELOPMENTAL

EDSE 303  3 (3, 0)

EDSE 305  3 (3, 0) F, W, S
Secondary School Curriculum: PR: EDTA 206 and EDTA 307. Study of total school patterns with emphasis on new trends, including subject areas, administration, supervision, school services and school related activities.

EDSE 310  4 (3, 2)
Speech Instructional Analysis: PR: EDTA 206 and EDTA 307. Study of instructional programs in speech; objectives, materials, techniques, organization for instruction, evaluation procedures, current research.

EDSE 320  3 (3, 1)
Foreign Language as Human Behavior: PR or CR: ENG 371 or C.I. Nature of language, objectives of foreign language learning and introduction to teaching basic skills. One hour laboratory required each week.

EDSE 321  4 (3, 2)
Foreign Language Instructional Analysis: PR: EDTA 206 and EDTA 307. Study of course objectives for the high school curriculum and survey of methods and materials having special application for teaching foreign language.

EDSE 330  4 (3, 2)
EDSE 340  4 (3, 2)
Study of course objectives for the high school curriculum and survey of methods and materials which have special application for teaching English.

EDSE 350  4 (3, 2)
Mathematics Instructional Analysis: PR: EDTA 206 and EDTA 307. Study of course objectives for the high school curriculum and survey of methods and materials which have special application for teaching mathematics.

EDSE 360  4 (3, 2)
Science Instructional Analysis: PR: EDTA 206 and EDTA 307. Study of course objectives for the high school curriculum and survey of methods and materials which have special application for teaching science.

EDSE 370  4 (3, 2)
Social Science Instructional Analysis: PR: EDTA 206 and EDTA 307. Study of instructional programs in Social Sciences; objectives; materials; techniques; organization of instruction; evaluation procedures; current research.

EDSE 380  4 (3, 2)
Physical Education Instructional Analysis: PR: EDTA 206 and EDTA 307. Study of course objectives for the high school curriculum and survey of methods and materials having special application for teaching physical education.

EDSE 404  3 (3, 0)
Instructional Techniques: PR: EDPL 330, CR: EDPL 408 and EDPL 430. Procedures, applications and evaluation of technical skills a teacher may employ in the classroom.

EDSE 421  3 (3, 1)
Oral Teaching of Foreign Languages: PR: EDPL 330 or C.I. Audio-lingually-based demonstration class. Practice in linguistic methods, One hour laboratory required each week.

EDSE 431  3 (3, 0)

EDSE 432  3 (3, 0)

EDSE 440  3 (3, 0)
Teaching Language and Composition: PR: EDTA 206 and EDTA 307. Techniques and methods in teaching of dialects, semantics, the various grammars. A survey of composition and rhetorical methods of selected authors.

EDSE 441  3 (3, 0)
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.

EDSE 442  4 (4, 0)
Reading in the Secondary School: PR: Senior standing or C.I. Developmental reading for the junior and senior high school pupil.

EDSE 461  3 (1, 4)
Biology Laboratory Teaching: PR: Senior standing. Participation in introductory level chemistry laboratory. Includes laboratory set-ups, laboratory staff meetings and a weekly seminar.

EDSE 462  2 (1, 3)
Chemistry Laboratory Teaching: PR: Senior standing. Participation in introductory level chemistry laboratory. Includes laboratory set-ups, laboratory staff meetings and a weekly seminar.

EDSE 463  2 (1, 3)
Chemistry Laboratory Teaching: PR: EDSE 462. Continuation of EDSE 462.

EDSE 464  2 (1, 3)
Physics Laboratory Teaching: PR: Senior standing. Participation in introductory level physics laboratory. Includes laboratory set-ups, laboratory staff meetings and a weekly seminar.

EDSE 465  2

EDSE 471  3 (3, 0)
Trends in Secondary School Social Science: PR: Senior standing. Identification, development and evaluation of major social science concepts as they relate to contemporary school programs.

EDSE 521  3 (3, 0)
Media and Research in Foreign Language Teaching: PR: Rank III Certificate or C.I. Rationale and use of technological aides in foreign language teaching, classroom research and evaluation.

EDSE 541  4 (4, 0)
Media and Methods in English Education: PR: Rank III Certificate or C.I. Practicum in the use of various media in the English classroom with emphasis on student film making and production of media.

EDSE 551  3 (3, 0)
Topics in Junior High School Mathematics: PR: Rank III Certificate or C.I. Instructional techniques and major problems in junior high mathematics programs.

EDSE 552  3 (3, 0)
Laboratory Programs in Mathematics: PR: Rank III Certificate or C.I. Design, organization and development of special materials and projects for mathematics independent study.

EDSE 561  3 (3, 0)
Inquiry in the Sciences: PR: Rank III Certificate or C.I. The techniques in teaching science by inquiry in the secondary school with the opportunity to participate in and develop inquiry lessons.
EDSE 562  

EDSE 571  
Inquiry in the Social Studies: PR: Rank III Certificate or C.I. An in-depth development of the role of inquiry in the new social studies with opportunity to both participate in and to develop inquiry episodes.

EDSE 601  

EDSE 602  
Patterns of Curriculum and Instruction: PR: Rank III Certificate or C.I. An analysis of exemplary secondary school programs and instructional procedures.

EDSE 611  
Secondary School Instructional Programs: PR: Rank III Certificate or C.I. Analysis of the forces which shape and contribute to the vertical and horizontal curriculum designs of secondary schools.

EDSE 621  

EDSE 622  

EDSE 641  

EDSE 642  
Reading Guidance for Adolescents: PR: Rank III Certificate or C.I. Review of literary works appropriate for young people to provide insight into psychological problems common to teenagers.

EDSE 651  
Secondary School Mathematics Programs: PR: Rank III Certificate or C.I. Major concepts in SMSG mathematics and other modern junior, senior and middle school programs.

EDSE 652  
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.

EDSE 661  
Intermediate School Science Programs: PR: Rank III Certificate or C.I. Basic concepts, philosophies, and formats of experimental and junior high school science programs.

EDSE 662  
Laboratory Programs in Science Education: PR: Rank III Certificate or C.I. Design, organization and development of special materials and projects for science independent study centers.

EDSE 672  
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.

TEACHING ANALYSIS

EDTA 206  
Human Development: Analysis of basic principles and applications in growth and learning from conception through adolescence. EDTA 307 recommended concurrently.

EDTA 305  
Principles of Evaluation: PR: Successful completion of Teaching Analysis (EDTA 307), and Human Development (EDTA 206). Principles of evaluation applied to advising pupils, diagnosing learning deficiencies, determining effectiveness of instruction and judging pupil progress.

EDTA 306  
Learning Theory: PR: Successful completion of Phase I. Learning principles in the schools; theoretical and practical application of learning principles in practical classroom setting.

EDTA 307  
Teaching Analysis: Initial requirement; an opportunity to examine and participate in general and specific dimensions of teaching with socio-economic factors emphasized. EDTA 206 recommended concurrently.

EDTA 480  
Overview of Education: Study of public education in the United States focusing on the development of structure and process in the educational enterprise.

EDTA 481  

EDTA 490  
Senior Seminar: Education in Human Affairs: Provides an overview of basic objectives, strategies, and techniques in education. This course, primarily intended for the senior student, is offered as one of the advanced Environmental Studies Seminars. Not open to the student enrolled in the College of Education.

EDTA 601  
EDVA 611 3 (3, 0)

EDTA 612 3 (3, 0)
Measurement and Evaluation in Education: PR: Rank III Certificate or C.I. Rationale and construction of evaluative instruments, parametric and non-parametric statistics, interpretation of data.

EDTA 613 3 (3, 0)

EDTA 614 3 (3, 0)

EDTA 615 3 (3, 0)

EDTA 616 3 (3, 0)
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.

EDTA 617 3 (3, 0)
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.

EDTA 618 3 (3, 0)
Instructional Models and Learning Theories in Education: PR: Rank III Certificate or C.I. Recent research and theoretical analysis of instruction-learning interfaces as they relate to learning in the schools.

EDVA 401 3 (3, 0)
Elementary School Art Instructional Analysis: PR: EDTA 206 and EDTA 307 or C.I. Methods and curriculum materials appropriate for teaching Visual Arts in the elementary schools.

EDVA 402 3 (3, 0)
Secondary School Art Instructional Analysis: PR: EDTA 206 and EDTA 307 or C.I. Methods and curriculum materials for teaching Visual Arts in the secondary schools.

EDVA 431 5 (5, 0)
Two-Dimensional Instructional Materials: PR: EDVA 401 or EDVA 402 or C.I. Application of two-dimensional materials to appropriate levels of instruction: chalk, ink, water color, crayon, tempera, acrylics, paper, fiber, and oils.

EDVA 432 5 (5, 0)
Three-Dimensional Instructional Materials: PR: EDVA 401 or EDVA 402 or C.I. Application of three-dimensional materials to appropriate levels of instruction: wood, paper, plaster, stone, clay, wax, fiber, metal, and synthetics.

EDVA 433 5 (5, 0)
Graphic Instructional Materials: PR: EDVA 401 or EDVA 402 or C.I. Application of graphic materials to appropriate level of instruction: direct and indirect basic processes of reproduction of mono and multi-printing.

EDVA 501 3 (3, 0)
Contemporary Visual Arts Education: PR: EDVA 401 and EDVA 402 or C.I. A study of current programs and innovations in public school Visual Arts Programs.

EDVA 502 3 (3, 0)
Found Arts: PR: EDVA 431 and EDVA 432 or C.I. Materials available for instruction in the public schools will be explored in depth in relation to their appropriateness and productive qualities.

EDVA 601 3 (3, 0)
Two-Dimensional Instructional Materials: PR: EDVA 401, EDVA 402, and EDVA 431, or C.I. Application of two-dimensional materials to appropriate levels of instruction: chalk, ink, water color, crayon, tempera, acrylics, paper, fiber, and oils.

EDVA 602 3 (3, 0)
Three-Dimensional Instructional Materials: PR: EDVA 401, EDVA 402, and EDVA 432, or C.I. Application of three-dimensional materials to appropriate levels of instruction: wood, paper, plaster, stone, clay, wax, fiber, metal, and synthetics.

EDVA 603 3 (3, 0)
Graphic Instructional Materials: PR: EDVA 401, EDVA 402, and EDVA 433, or C.I. Application of graphic materials to appropriate level of instruction: direct and indirect basic processes of reproduction of mono and multi-printing.

VOCATIONAL / TECHNICAL EDUCATION

EDVE 381 3 (3, 0) W
Career Development Analysis: Analysis of job core areas. Community, state and federal informational services, educational requirements and employment prospects in selected areas. Application and job interview techniques.

EDVE 401 4 (4, 0)

EDVE 402 5 (5, 0)
Methods of Teaching Technical/Vocational Subjects: PR: Rank
Ill Certificate or C.I. A study of the techniques, skills and procedures used in teaching technical/vocational education subjects.

EDVE 411
Analysis of Vocational Occupations: PR: Rank III Certificate or C.I. Techniques of analyzing components of an occupation to obtain content for instruction.

EDVE 421

EDVE 422
Evaluation of Occupational Instruction: PR: Rank III Certificate or C.I. This course is concerned with the total evaluation process as it relates specifically to vocational instruction.

EDVE 423
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.

COLLEGE OF ENGINEERING

CIVIL ENGINEERING & ENVIRONMENTAL SCIENCES

CEES 321
Surveying: CR: Junior Standing. Theory and field practice in engineering measurements, and the reduction and adjustment of data.

CEES 322
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.

CEES 351

CEES 355
Structural Steel Design: PR: ENGR 312. Design of steel structural members. Selected topics in beam design, column design, plastic design, connections and build-up members.

CEES 357

CEES 411

CEES 412

CEES 414
Water and Wastewater Systems Design: PR: CEES 411 or 412. Planning capacity and design of water distribution systems, sanitary sewerage, storm drainage systems, water and wastewater treatment plants.

CEES 415
Atmospheric Pollution Control: PR: Senior standing. Atmospheric composition and dynamics, sources and nature of contaminants, toxicity thresholds and biological significance, engineering methods of measurement and control.
CEES 416
Public Health Engineering: PR: Senior standing. Selected topics in the occurrence and transmission of diseases, mathematical theory of epidemics, sanitation of the environment, vector control and public engineering and administration.

CEES 417
Environmental Health: PR: Senior standing. Selected topics in industrial hygiene, radiological health, effects of pollution on the natural environment, pollution control concepts and regulatory agencies.

CEES 431

CEES 432
Soil Mechanics and Foundation Engineering II: PR: CEES 431. Continuation of CEES 431 with emphasis on foundations including soil investigations, earth pressures, settlements, bearing capacity, pile foundations, slope stability.

CEES 451
Matrix Methods of Structural Analysis I: PR: CEES 351 or C.I. Structural analysis of beams, frames, and plates by matrix methods. Identical to EMMS 441.

CEES 452
Matrix Methods of Structural Analysis II: PR: CEES 441. Extension of CEES 451 to include selected topics in stability, vibration, and limit analysis of beams, frames and plates.

CEES 461

CEES 462
Transportation Engineering: PR: CEES 461. Advanced topics in transportation system analysis.

CEES 463
Traffic Engineering: PR: CEES 461 and ENGR 371. Study of operator and vehicle characteristics, street capacity, signals, signs and markings. All phases of traffic engineering as applied to urban areas.

CEES 471

CEES 472
Urban Planning: PR: CEES 471. Municipal organization and administration, public health, public utilities, services, zoning, replanning, critical studies.

CEES 501
Environmental Engineering — Chemistry I: Study of fundamental principles of physical and analytical chemistry applicable to treatment of water and wastewater. Chemical thermodynamics, chemical kinetics, chemical equilibria, water analysis.

CEES 502
Environmental Engineering — Chemistry II: PR: CEES 501 or C.I. Continuation of CEES 501 to include study of fundamental principles of organic chemistry and biochemistry as applied to environmental quality control, biodegradation of wastes, and wastewater analysis.

CEES 518
Hydraulic Engineering: Application of principles of fluid mechanics to engineering problems. Topics include open channel flow, flow in conduits under pressure, hydraulic machinery, principles of reservoir planning, water supply systems, dams, spillways, and other hydraulic works.

CEES 521
Aerial Photographic Interpretation: PR: C.I. Geometrical principles, optics, photography, survey cameras, stereoscopic vision and measurement, interpretation, theory of image measurement, terrestrial photogrammetry, aerial photography, thermal imagery, fundamental projective relations, errors.

CEES 525
Advanced Topics in Engineering Geology: Geologic aspects of major civil engineering works including dams, reservoirs, urban development, transportation systems, etc.

CEES 530
Foundations Design I: Design of fundamental foundation units including spread footings, combined footings, mats, and retaining walls.

CEES 581
Water Resources Engineering: PR: C.I. Hydrology, hydraulics, pressure conduits, open channels, and uses of water. The economics and engineering of systems for control and utilization of water resources will be studied using systems analysis and operations research techniques.

CEES 582
Water Resources Economics: PR: CEES 581. General microeconomic concepts, benefits and costs from investment alternatives, external diseconomies, effluent charges, interest rates, design life, and case studies of foreign and domestic policies.

CEES 601
Unit Operations and Processes of Sanitary Engineering I: Theory and design of physical, chemical, and biological operations and processes used in sanitary engineering.

CEES 602
Unit Operations and Processes of Sanitary Engineering II: Continuation of CEES 601. Theory and design of physical, chemical, and biological operations and processes.
CEES 603  
Unit Operations and Processes Laboratory: Laboratory exercises in physical, chemical, and biological processes.

CEES 604  
Water and Wastewater Treatment Systems: Integration of unit operations and processes into treatment systems. Emphasis will be placed on functional, hydraulic, and economic design using computers.

CEES 611  
Environmental Engineering — Water Supply: Water resources, hydrologic cycle, water quality, chemistry of natural water, water treatment, transmission, and distribution.

CEES 612  
Environmental Engineering — Wastewater: Drainage systems, collection and transmission of wastewater, channel flow, biodegradation of organic wastes, principles of wastewater treatment, effluent and sludge handling and disposal.

CEES 614  
Water and Wastewater Systems Design: Planning capacity and design of water distribution systems, sanitary sewerage, storm drainage systems, water and wastewater treatment plant.

CEES 615  
Atmospheric Pollution Control: Atmospheric composition and dynamics, sources and nature of contaminants, toxicity thresholds and biological significance, engineering methods of measurement and control.

CEES 616  
Public Health Engineering: Selected topics in the occurrence and transmission of diseases, mathematical theory of epidemics, sanitation of the environment, vector control, and public engineering and administration.

CEES 617  
Environmental Health: Selected topics in industrial hygiene, radiological health, effects of pollution on the natural environment, pollution control concepts, and regulatory agencies.

CEES 618  
Solid Wastes Management: Study of the extent and characteristics of the solid waste problem, collection and disposal systems, and environmental interfaces and effects.

CEES 620  
Groundwater and Seepage: Theories of groundwater movement, geological factors, analysis techniques, etc. Emphasis on practical considerations.

CEES 630  
Foundations Design II: Continuation of topics in CEES 530 including sheet piles and pile foundations.

CEES 681  
Water Resources Systems I: PR: CEES 582. A comprehensive approach to planning, controlling, and development of water resources systems. Applications of systems analysis and economic theory to water resources problems. Deterministic models are developed and solved. Case studies.

CEES 682  

ELECTRICAL ENGINEERING AND COMMUNICATIONS SCIENCES

EECS 311  
Introduction to Digital Circuits: PR: COMP 205. Introduction to digital components used in digital switching circuits and to the properties of magnetic materials; construction of basic logic gates and flip-flops; consideration of various practical problems including reliability, noise and packaging techniques. Intended primarily for computer science majors.

EECS 321  

EECS 322  
Electronic Engineering: PR: ENGR 322. Electronic devices and circuits including small signal amplifiers, power amplifiers, and switching circuits.

EECS 331  

EECS 341  
Electromagnetic Fields: PR: ENGR 322 and MATH 331. Introduction to electrical fields and waves.

EECS 411  

EECS 412  
Logical Systems Design: PR: EECS 411. Systems investigation, design, and operation of digital computers; study of a basic hardware set and a basic software set.

EECS 413  

EECS 414  

EECS 421  
Electrical Networks: PR: EECS 321 and 341. Traveling electromagnetic waves with application to distributed parameters.
EECS 431  
Electrical Machinery: PR: EECS 331. Methods and techniques of systems analysis applied to the dynamics of electrical machinery.

EECS 442  
Microwaves: PR: EECS 341. Microwave devices and systems and measurement techniques.

EECS 451  

EECS 461  

EECS 462  

EECS 464  

EECS 513  
Pulse Circuits: PR: Basic electronics course. Wave generating, shaping, and logic circuits.

EECS 514  
Pulse Circuits Laboratory: Laboratory for EECS 513.

EECS 531  
Environmental Control Systems: PR: ENGR 421 or equivalent. Modeling, control methods, stability, and optimization applied to environmental systems.

EECS 535  
Electric Power Generation and Distribution: PR: ENGR 323 or equivalent. Introduction to electric energy sources. Concept of complex power in single and three phase systems. Synchronous machines, power transformer, and transmission lines.

EECS 543  
Coherent Optics Applications: PR: PHYS 354. Theory and design of coherent optical systems lasers, information, processing, communication, holography.

EECS 553  

EECS 611  
Modern Circuit Design: Application of computer aided methods for the analysis and synthesis of passive and active networks.

EECS 612  
Synthesis of Electric Filters: Analysis and synthesis of electric filters.

EECS 613  
Digital Circuits: Analysis of logic circuits, design of digital systems using contemporary integrated circuits, laboratory project.

EECS 621  

EECS 623  
Modern Analog Computers: Analog programming fundamentals and techniques emphasizing integral use of logic and analog elements as applied to parameter optimization, boundary value problems, and partial differential equations.

EECS 625  
Computer Simulation of Environmental Systems: PR: EECS 531 or equivalent. Modeling environmental systems using digital, analog, and hybrid computer techniques.

EECS 631  
Modern Control Theory: State space method of analysis for discrete and continuous control, phase plane, Lyapunov stability.

EECS 632  

EECS 633  

EECS 641  

EECS 643  
Optical Electronic Communication Systems: PR: EECS 543 or C.I. Introduction to optical electronic systems such as both gas and solid state laser systems, optical detectors, modulators, and frequency converters. Optical communication systems.

EECS 644  
Optical Communication Theory: Application of information theory to optical communication systems. Development of optical correlation techniques. Holographic techniques and applications.

EECS 645  
Remote Sensing Optical Systems: PR: EECS 341 or equivalent. Study of electromagnetic phenomena and systems at optical and near-optical wavelengths and the use of such systems in environmental monitoring.
EECS 651  
Signal and System Analysis: Representation of signals and linear systems in the frequency and time domains, transforms, sampling, random signals.

EECS 652  
Digital Processing of Signals: Linear discrete system theory; z-transform theory, discrete spectrum analysis, and digital filtering.

EECS 653  
Communication Theory: Theory of communicating in the presence of noise, modulation, optimum filtering, phase-lock loop.

EECS 662  
Amplifier Design: Small-signal device models; analysis and synthesis of electronic amplifier circuits in frequency and time domains.

EECS 664  
Operational Amplifiers: The differential amplifier stage, multistaging, linear circuit applications, uses in non-linear circuits, active filters.

ENGINEERING CORE

ENGR 100  
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.

ENGR 101  
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.

ENGR 103  
Creative Design: PR: C.I. Role of the engineer as a creative design professional. Emphasis on understanding the creative process and factors that influence it. Attitudes and viewpoints of the designer and an investigation of the techniques of analysis, synthesis, and evaluation used.

ENGR 111  
Engineering Concepts: CR: MATH 321. Introduction to the basic physical phenomena essential to the understanding of engineering structures, machines, processes, and systems. Primary emphasis on mechanics, materials behavior, and thermofluid mechanics phenomena.

ENGR 151  
Chemical Foundations of Engineering: PR: Satisfactory performance in one year of high school chemistry or physics; CR: MATH 211. 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.

ENGR 152  

ENGR 201  
Engineering Design Case Studies: PR: Sophomore standing and ENGR 103. Discussion of the role of various engineering disciplines in the creative design process. Invited guest speakers will review pertinent case studies covering a broad spectrum of engineering problems.

ENGR 211  
Engineering Analysis — Statics: PR: ENGR 111 and MATH 322. Fundamental concepts of mechanics including resultants of force systems, free-body diagrams, equilibrium of rigid bodies, and analyses of structures.

ENGR 221  
Electrical Science: PR: MATH 323 and ENGR 111. General concepts of electricity and magnetism; the development of fundamental laws of electrical engineering; the introduction of the basic circuit elements.

ENGR 311  
Engineering Analysis — Dynamics: PR: ENGR 211 and MATH 323. Kinematics and kinetics of particles and rigid bodies; mass and acceleration, work and energy, and impulse and momentum.

ENGR 312  

ENGR 321  
Principles of Electrical Engineering: PR: ENGR 221; CR: MATH 331 and COMP 102. Introduction to fundamental laws of electrical circuits, including transient, steady-state AC, and general network analysis.

ENGR 322  

ENGR 323  

ENGR 331  

ENGR 332  
## COURSES

### ENGR 341

### ENGR 342

### ENGR 351

### ENGR 352

### ENGR 361
Man and His Environment: PR: ENGR 152 or equivalent. Man's interaction with the air, water and land environment in which he lives. The role of engineering in control of the physical environment for the benefit of mankind.

### ENGR 371
Probability and Statistics for Engineers: PR: MATH 323. 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. (Same as STAT 335.)

### ENGR 403
Senior Creative Design: 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.

### ENGR 421
Linear Control Systems: PR: MATH 331 and ENGR 332. Theoretical and experimental study of the dynamics of linear, lumped parameter models of mechanical, electrical, fluid, thermal and mixed systems as applied to control systems.

### ENGR 431
Thermodynamics and Transport Processes: PR: ENGR 331; CR: ENGR 332. Consequences of the second law and combined first and second law analysis of thermodynamic systems. Introduction to heat transfer including conduction, convection, and radiation.

### ENGR 441
Technical Communications: PR: Junior standing. Composition for technical papers, reports and scientific articles suitable for publication. Oral and written presentation.

### ENGR 442

### ENGR 443
Engineering Administration: PR: ENGR 341 and senior standing. Engineering organization and administration; delegation of authority and responsibility; effective utilization of resources; compensation structure, labor-management relations; selected case studies.

## ENGINEERING — INTERDISCIPLINARY COURSES

### ENGR 480
Systems Modelling: PR: COMP 101 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.

### ENGR 481
Man and Machine: The influence and interrelationship of invention and technical progress on the evolution of social forms and institutions.

### ENGR 482
Engineering & Technology in History: Important developments in engineering and technology and their effect on society and our socio-economic processes and institutions.

### ENGR 483
Technology and Social Change: 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.

### ENGR 484
Science in History: Examination of the reciprocal relations of science and society from ancient to recent times.

### ENGR 485
Topics in Urban Development: Production, distribution, and consumption of various commodities and engineering relationships to distribution, internal structure, and function of urban developments. Interrelationship of engineering, social, economic, and cultural phenomena.

### ENGR 486
Science, Engineering, and Ethical Systems: A study of the contributions of science and engineering to society in light of moral, social, and ethical principles. A systematic and critical consideration of representative ethical problems created by advancing technology.

### ENGR 487
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.

ENGR 488 3 (3, 0) F, W, S, Su
Man and Environment: PR: C.I. A discussion of 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
intended for engineering students.

ENGR 489 3 (3, 0) F
Computers, Cybernetics and Society: The effects of computers
and the cybernetic revolution on the individual and society.
Effects of positive and negative feedback on biological, techno­
logical, and social systems. Computers and their interactions with
human system.

ENGR 490 2 (2, 0) F, W, S
Engineering in Human Affairs: The impact of engineering on
modern society. This course, primarily intended for the senior
student, is offered as one of the Advanced Environmental Studies
Seminars. Not open to students majoring in the College of
Engineering.

ENGINEERING MATHEMATICS AND
COMPUTER SYSTEMS

EMCS 423 3 (3, 0)
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.

EMCS 430 3 (3, 0)
Engineering Software Design: PR: COMP 102 or equivalent; CR:
MATH 331. Theory and construction of special purpose computer
software for engineering applications. Review of problem oriented
languages through selected case studies including ECAP, CSMP,
COGO and SNOBOL 4.

EMCS 431 3 (3, 0) F
Mini-Computers in Engineering: PR: COMP 102. Orientation in
the NOVA mini-computer. Organization of the computer, memory
and processor, basic programming, input-output equipment and
instructions, and computer interfacing.

EMCS 432 3 (3, 0) W
Principles of Computer Control: PR: ENGR 421 and EMCS 431
or C.I. Design, analysis, and implementation of computer based
control systems, including analog, digital and on-line schemes for
process identification and control.

EMCS 433 3 (3, 0) S
Computer Systems in Engineering: PR: EMCS 431 and EMCS
432. Techniques of direct digital optimizing and adaptive control
applied to a fully instrumented laboratory scale physical process.

EMCS 460 3 (3, 0)
Optimum Seeking Methods: PR: C.I. Methods of search for the
optimum of incompletely specified functions. Single and multi­
variable search techniques, random search, Fibonacci search,
minimax concept, and gradient methods.

EMCS 470 3 (3, 0) W
Engineering Mathematical Systems: PR: MATH 331 and IEMS
447. The solution of differential equations generated from
modeling real systems. Examples from economics, biology, engi­
nering, etc.

EMCS 471 3 (3, 0) S
Engineering Mathematical Analysis: PR: MATH 324 and MATH
331. The application of mathematical methods to engineering
problems including vector and tensor fields, state space tech­
niques, orthogonal curvilinear coordinates and orthogonal func­
tions.

EMCS 530 3 (3, 0) W
Engineering Data Reduction: PR: ENGR 371. Methods for
processing and analysis of scientific test and process data,
including computer filtering schemes and data compression and
recovery techniques.

EMCS 572 3 (3, 0)
Engineering Mathematical Analysis: EMCS 471 or C.I. The
application of mathematical methods to engineering problems
including linear analysis and transformations and matrix manip­
ulation.

EMCS 573 3 (3, 0)
Analytical Methods in Engineering: PR: EMCS 471 or C.I. The
kinematics and dynamics of ideal field theory problems and their
mathematical expression. Formulation of boundary conditions.
Basic concepts of complex potential and conformal mapping with
application to problems in fluid flow, thermal, and electrical
potential.

EMCS 574 3 (3, 0)
Analytical Methods in Engineering: PR: EMCS 471 or C.I. The
engineering applications of partial differential equations and the
concept of the mathematical modeling of physical problems.
Development of characteristic properties of equations and
methods of solutions, including separation of variables, transform
techniques, and method of characteristics.

EMCS 575 3 (3, 0)
Numerical Analysis in Engineering: PR: MATH 324 and MATH
331. Application of numerical techniques to the solution of
complex engineering problems. Analysis and organization of
practical programs for numerical solution of initial, boundary and
eigenvalue problems.

EMCS 610 4 (3, 2)
Hybrid Computer Systems: PR: EMCS 471 or C.I. Analysis of
Hybrid Systems and components. Applications of hybrid systems
to problems in optimization theory, control, man-machine
systems, and biological systems.

EMCS 630 3 (3, 0) W
Discrete System Simulation: PR: ENGR 371 or equivalent.
Computer-based modeling and analysis of discrete-space, dis­
time engineering related systems. Use of FORTRAN IV and GPSS/360 for implementing such models. Laboratory assignments.

**EMCS 631**

3 (3, 0) F

Continuous System Simulation: PR: ENGR 342 or equivalent. Computer-based modeling and analysis of continuous systems. Use of state-space techniques and the CSMP/360 simulation language. Laboratory assignments.

**EMCS 632**

3 (3, 0) F


**EMCS 640**

3 (3, 0)


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**ENGINEERING MECHANICS AND MATERIALS SCIENCES**

**EMMS 351**

4 (4, 0) S


**EMMS 355**

3 (3, 0) F

Structural Steel Design: PR: ENGR 312. Design of steel structural members. Selected topics in beam design, column design, plastic design, connections and built-up members. Identical to CEES 355.

**EMMS 357**

3 (3, 0) S


**EMMS 411**

3 (3, 0) F


**EMMS 412**

3 (3, 0) W


**EMMS 413**

3 (3, 0) S

Thermodynamic Properties of Materials: PR: ENGR 331 and ENGR 352. Fundamental concepts of thermodynamics and kinetics are applied to the study of solid state phase transformations, equilibrium in multicomponent systems and diffusion in solids.

**EMMS 414**

3 (3, 0) S


**EMMS 421**

3 (3, 0) W

Theory of Crystalline Solids: PR: ENGR 352 and EMMS 414 or C.I. Modern theory of crystalline materials. Topics treated include crystal structure, mechanical, thermal and transport properties.

**EMMS 430**

3 (3, 0) S


**EMMS 433**

3 (3, 0) Su

Physical Metallurgy: PR: EMMS 421 or C.I. Principles underlying the study of diffusion, recovery and recrystallization, and solidification processes in metal systems.

**EMMS 434**

3 (2, 2) F


**EMMS 435**

3 (3, 0) F

Structure and Properties of Ceramics and Polymers: PR: EMMS 413 or C.I. Structure of vitreous and crystalline non-metals; mechanical, thermal, and electrical properties of organic polymers and composite materials.

**EMMS 441**

4 (4, 0) W

Matrix Methods of Structural Analysis I: PR: EMMS 351 or C.I. Structural analysis of beams, frames, and plates by matrix methods. Same as CEES 451.

**EMMS 442**

4 (4, 0) S

Matrix Methods of Structural Analysis II: PR: EMMS 441. Extension of EMMS 441 to include selected topics in stability, vibration, and limit analysis of beams, frames and plates. Same as CEES 452.

**EMMS 501**

3 (2, 2) F

Electron Microscopy of Crystalline Materials: PR: EMMS 421 or C.I. Introduction to the optics of the electron microscope, electron and electron diffraction contrast mechanisms in foils containing lattice defects and second phases, evaluation of methods of specimen preparation including thin foils and replicas; emphasis on the interpretation of images and diffraction effects.

**EMMS 502**

3 (2, 2) S

X-Ray Diffraction: PR: EMMS 421 or C.I. Properties of X-rays. Atomic arrangements in crystals and determination by X-ray
diffraction. The Laue, rotating crystal, and powder methods. Applications to materials problems.

EMMS 508 3 (3, 0) W

EMMS 511 3 (3, 0) W
Phase Transformation in Solids: PR: EMMS 413 and EMMS 430 or C.I. Principles of phase transformations, including precipitation, recrystallization, eutectoids, and martensite; emphasis on the understanding of the thermodynamic and kinetic processes underlying these phenomena.

EMMS 521 3 (3, 0) S

EMMS 541 4 (4, 0) W
Intermediate Mechanics of Materials: PR: ENGR 312 and MATH 331. Stress and strain at a point; failure theories; elements of plane elasticity; curved beams; bending and torsion of thin-walled structures; theory of thin plates.

EMMS 600 3 (3, 0) F

EMMS 601 3 (3, 0) W

EMMS 603 3 (2, 2) W

EMMS 610 3 (3, 0) W

EMMS 611 3 (3, 0) S
Mechanical Metallurgy: PR: EMMS 610. Continuation of EMMS 610.

EMMS 620 3 (3, 0) S
Physical Ceramics: PR: EMMS 435 or C.I. Composition and structure of ceramics and glasses. Discussion of thermal conductivity, heat capacity, magnetic behavior and ferroelectric behavior with emphasis on real materials.

EMMS 630 3 (3, 0) Su
Polymer Science: PR: EMMS 435 or C.I. Consideration of the structure and properties of polymers from the viewpoint of materials science. Specific attention to polymerization processes, crystal structure, and mechanical properties.

EMMS 641 4 (4, 0) S

EMMS 642 4 (4, 0) F

EMMS 643 4 (4, 0) W

EMMS 644 3 (3, 0) S

EMMS 645 3 (3, 0) F

EMMS 646 3 (3, 0) W

EMMS 652 4 (4, 0) Su

EMMS 654 3 (3, 0) F

EMMS 661 3 (3, 0) S
Advanced Dynamics: ENGR 311, EMCS 471 or C.I. Dynamics of particles, distributed mass systems, and rigid bodies from an advanced viewpoint. Virtual work principle, Lagrange's and Euler's equations of motion and Hamilton's principle.

EMMS 662 3 (3, 0) F
Advanced Dynamics: PR: EMMS 661. Continuation of EMMS 661.
# ENGINEERING TECHNOLOGY

## ENT 303 4 (4, 0)
**Problem Analysis:** PR: MATH 311, MATH 312 or C.I. Applications of computational techniques to selected problems in the practice of engineering technology. Problems relating to specific option areas.

## ENT 304 3 (3, 0)

## ENT 305 4 (4, 0)
**Applied Mechanics:** PR: MATH 110 and MATH 111 or equivalent. Static and dynamic effects of forces acting on rigid bodies. Friction, centers of gravity, moments of inertia, rotation, plane motion.

## ENT 306 4 (4, 0)
**Materials and Processes:** PR: MATH 110 and MATH 111 or equivalent. Relation between structure and properties of metals, wood, ceramics and polymers. Testing and inspection, casting, forming and working of metals, heat treatment, and joining.

## ENT 321 5 (4, 3)
**Electronic Circuits:** PR: MATH 311 and basic electrical circuit theory. Introduction to graphical and analytical analysis of electronic circuits. Amplifiers, feedback networks and power supplies.

## ENT 322 4 (3, 3)
**Digital Circuits:** Operation and application of digital circuits. Laboratory.

## ENT 331 3 (3, 0)
**Hydraulics and Hydrology:** PR: Junior standing. Applied hydraulics and hydrology including topics in closed and open channel flow, rainfall, runoff, seepage, ground water, storage and impoundments, wells, etc.

## ENT 332 3 (3, 0)
**Water Supply Systems:** Fundamental techniques applicable to technical projects dealing with water resources, hydrology, water treatment, transmission and distribution.

## ENT 333 3 (3, 0)
**Wastewater Systems:** Fundamental techniques applicable to technical projects dealing with collection and transmission of wastewater, treatment of wastewater, handling and disposal of effluent and sludge.

## ENT 341 3 (3, 0)
**Contracts and Specifications:** Integration of contractual specifications and requirements into detailed design layouts.

## ENT 342 4 (3, 2)
**Electro-Mechanical Design:** PR: ENT 305 and ENT 401. Masses, motions, kinematics and dynamics of machinery.

## ENT 343 4 (3, 3)
**Product Design:** PR: ENT 342. Principles of layout and dimensioning for production. Consideration of design factors, standards, specifications and codes with emphasis on producibility.

## ENT 351 3 (3, 0)
**Work Analysis:** PR: Junior standing. Analysis of work elements in technical projects. Work simplification and methods improvements in technical operations.

## ENT 352 3 (3, 0)
**Cost Estimation and Analysis:** Determination and analysis of cost of operations including applicable indirect costs. Costs involved in an operation from the planning stage to its completion will be analyzed using analytical techniques such as CPM and PERT/COST.

## ENT 353 3 (3, 0)
**Computer Methods in Industry:** PR: COMP 102. An overview of industrial EDP applications. Includes data processing concepts, functions of the computer, and applications in data processing, process and machine control.

## ENT 401 4 (3, 3)
**Electricity and Electronics:** Electricity and magnetism, applications of the basic principles of electric circuits, electronic amplifiers.

## ENT 402 4 (4, 0)
**Strength of Materials:** PR: ENT 305 or C.I. Relationship between external forces and action of members of structure. Topics include stress and strain, torsion, beams, columns, stress concentrations and fatigue.

## ENT 403 4 (4, 0)
**Applied Thermodynamics:** PR: ENT 305. Introduction to the concepts of energy, work, and heat; thermodynamic properties and processes; basic laws and formulae; cycle efficiency; flow through orifices and nozzles; empirical design formulae.

## ENT 421 3 (3, 0)
**Computer Systems:** PR: COMP 102 and ENT 322. The hardware organization of process control and special purpose digital computers. Peripherals and programming techniques.

## ENT 422 3 (3, 0)
**Antennas and Propagation:** Study of the basic theory and technology used in high frequency transmission lines and waveguides, propagation and radiation, antennas.

## ENT 423 3 (3, 0)
**Feedback Control:** Feedback control system analysis and design techniques, control system components, and applications to practical control systems.

## ENT 424 3 (3, 0)
**Communications Systems:** The principles of oscillators, noise, symmetrical circuits, modulation and demodulation, pulse and ramp circuits.
ENT 431
Treatment Plant Analyses and Control: Basic techniques applicable to lab analyses, control measures, and overall operation of water and wastewater treatment plants.

ENT 432
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.

ENT 433
Air Pollution Control: Fundamental techniques applicable to analyzing composition and sources of pollutants, measuring concentrations, and controlling emissions. Air pollution control programs, laws, rules, and regulations.

ENT 434
Solid Waste Management: Fundamental techniques applicable to technical projects involving solid waste composition, collection and disposal. Solid wastes programs, laws, rules, and regulations.

ENT 441

ENT 442
Design Integration: PR: ENT 343. Project design involving planning, control, prototype construction, testing and evaluation.

ENT 443
Senior Project: PR: ENT 442. Individual project involving product conception, design, development, construction, and testing. A final technical report is required of each student.

ENT 451
Process Planning and Scheduling: Planning and control of manpower and equipment in the plant environment. Includes description and application of specific planning and scheduling techniques. Plant layout, machine loading, scheduling, production and inventory control.

ENT 452
Occupational Safety: Accident prevention and the operation of an industrial safety program. Basic requirements of the Occupational Safety and Health Act standards.

ENT 453

ENT 454
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.

GEOGRAPHY, PHYSICAL

GEOG 100
Physical Geography: Basic physical elements of geography including climate, landforms, soils, natural vegetation, minerals and their integrated patterns of world distribution.

GEOG 301
Resources Geography: PR: Junior standing. Analysis of basic principles and problems associated with development, use, conservation, and management of natural resources with special emphasis on the United States.

INDUSTRIAL ENGINEERING AND MANAGEMENT SYSTEMS

IEMS 301

IEMS 311

IEMS 324
Production Management: PR: Sophomore Standing. Principles and methods of production viewed from a managerial decision-making level. (Same as MGMT 324)

IEMS 332
Statistical Quality Control: Statistical concepts and methods applied to the control of quality of manufactured products. (Same as STAT 332.)

IEMS 411

IEMS 412
Safety Engineering: PR: Junior standing. Basic principles of accident prevention in relation to the factors involved in the accident prevention. Hazards within the workplace environment — plant layout and materials handling, machinery, electrical hazards, flammable materials, and pressure vessels.

IEMS 413
IEMS 414 3 (2, 2) S
Industrial Facilities Planning Design: PR: IEMS 301. Comprehensive design of an industrial production system. Problems involved in and the inter-relationships of plant location, product analysis, process design, equipment selection, materials handling, plant arrangement and supplementary services.

IEMS 415 3 (3, 0)
Job Evaluation and Wage Incentives: PR: IEMS 301 or IEMS 324. Work measurement as a basis for industrial wage systems; consideration of work factor and task analysis in job classification and wage determination.

IEMS 418 3 (3, 0)
Project Engineering: PR: Senior standing. Role of the project engineer in research and development, emphasizing the complete sequence of steps from project proposal to project completion. Analytical techniques such as CPM and PERT/COST will be considered.

IEMS 422 3 (2, 2)

IEMS 423 3 (2, 2)
Analysis of Industrial Operations: PR: Minimum of 12 credits of IEMS course work. An extensive and intensive analysis of industrial operations for optimum utilization of resources.

IEMS 424 3 (3, 0) W
Management Control Systems: PR: ENGR 371 or equivalent. Management decision rules, and mathematical and economic models of production, forecasting, scheduling, order control and inventory control. Application of the computer as a management tool to automate control of the production and inventory process.

IEMS 431 3 (3, 0) W
Engineering Applications of Computer Methods: PR: MATH 323, COMP 102 or approval of instructor. Methods of structuring engineering problems for computers; general characteristics and performance measures of computers and auxiliary equipment. Introduction to computer-aided design and time-sharing systems, case studies.

IEMS 432 3 (2, 2) F
System Simulation with Digital Computers: PR: COMP 102 or equivalent. Methods and procedures for simulating large scale systems with digital computers, FORTRAN, CSMP and GPSS programming languages are used.

IEMS 433 3 (3, 0)
Information Acquisition: PR: ENGR 371. The design of systems to collect data for use in managerial decision models, job evaluation, wage payment, production standards, queueing studies, engineering evaluation, and reliability predictions.

IEMS 441 4 (4, 0)

IEMS 443 3 (3, 0)

IEMS 447 3 (3, 0) F, S

IEMS 450 3 (3, 0) W
Biomedical Engineering: PR: ENGR 342 or C.L. An introduction to the engineering description and analysis of living systems. Application of modern technology to medicine and biology. Systems analysis and its application to biomedical and ecological systems.

IEMS 461 3 (2, 2) S
Human Engineering: PR: Senior standing. Man-machine systems; design and conduct of human engineering studies.

IEMS 462 3 (3, 0)
Human Factors in Space Travel: PR: IEMS 461. Artificial environments and environmental control of upper atmosphere and space.

IEMS 463 4 (4, 0)
Occupational Health: Industrial health hazards and occupational diseases. Control of health hazards; substitution of less toxic materials, process changes, segregation of hazardous processes, noise control, radiation hazards.

IEMS 464 3 (2, 2)
Design of Industrial Operations: Planning, analyzing, controlling and evaluating production systems. Laboratory assignments.

IEMS 470 3 (3, 0)
Introduction to Public Systems Analysis: PR: ENGR 371 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.

IEMS 502 3 (3, 0) F, Su
Probability for Engineers: PR: ENGR 371. Engineering application of probability, combinatorial analysis, sample space, events, probability, discrete and continuous random variables, and probability distributions. (Same as STAT 535).

IEMS 503 3 (3, 0) W
Statistics for Engineers: PR: ENGR 371. Engineering application of statistics, significance tests and confidence intervals, tests of hypotheses, simple and multiple regression and correlation. (Same as STAT 536)

IEMS 510 4 (3, 2)
Hospital Systems Analysis: PR: IEMS 301 or equivalent. The application of industrial engineering and systems analysis concepts
<table>
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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
<th>Prerequisites</th>
<th>Notes</th>
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<tbody>
<tr>
<td>IEMS 521</td>
<td>Engineering Reliability and Quality Assurance</td>
<td>3</td>
<td>PR: IEMS 332 or C.I.</td>
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<td>Design and management of reliability programs and</td>
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<td>quality assurance systems; mathematics of</td>
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<td>reliability.</td>
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<td>IEMS 532</td>
<td>Management Information Systems I: PR: COMP 102 or equivalent.</td>
<td>4</td>
<td>Analysis of the management and control functions</td>
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<td>from the context of information processing</td>
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<td>requirements. Presentation of alternative</td>
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<td>system designs, including real-time, on-line</td>
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<td>computing systems.</td>
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<td>IEMS 541</td>
<td>Mathematical Systems Theory II: PR: IEMS 441 or equivalent.</td>
<td>4</td>
<td>Introduction to non-linear analysis. Approximation</td>
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<td>methods and numerical solutions. Stability of</td>
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<td>non-linear systems. Systems examples to be taken</td>
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<td></td>
<td>from engineering, environmental science, and</td>
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<td>economics.</td>
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<td>IEMS 550</td>
<td>Biomedical Instrumentation: PR: ENGR 342 or C.I.</td>
<td>4</td>
<td>Theory and techniques of biological instrumentation</td>
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<td>systems including transducers and computers</td>
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<td>applications. The nature of biological signals,</td>
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<td>their detection, analysis and display.</td>
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<td>IEMS 561</td>
<td>Human Performance: PR: IEMS 461 or C.I.</td>
<td>3</td>
<td>A study of the factors affecting human acquisition</td>
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<td>of skills and level of performance attained.</td>
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<td>Includes a critical review of background research.</td>
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<td>IEMS 602</td>
<td>Engineering Economic Analysis: PR: ENGR 341.</td>
<td>3</td>
<td>The engineering economic audit, breakeven point</td>
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<td>analysis, variable budget control of</td>
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<td>manufacturing costs, cost analysis, and product</td>
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<td>pricing.</td>
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<td>IEMS 610</td>
<td>Project Engineering: PR: Graduate standing.</td>
<td>3</td>
<td>Role of the project engineer in research and</td>
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<td>development, emphasizing the complete</td>
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<td>sequence of steps from project proposal to</td>
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<td>project completion. Analytical techniques such</td>
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<td>as CPM and PERT/COST will be considered.</td>
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<td>waiting line problems using analytical and Monte</td>
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<td>Carlo methods. Laboratory assignments.</td>
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<td>IEMS 624</td>
<td>Operations Research I: PR: ENGR 442 or equivalent.</td>
<td>3</td>
<td>Methods of operations research including</td>
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<td>formulation of models and derivation of solutions</td>
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<td>by optimization techniques; sequencing and</td>
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<td>replacement, linear programming, geometric and</td>
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<td>dynamic programming.</td>
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<td>IEMS 625</td>
<td>Operations Research II: PR: IEMS 624. Introduction to stochastic</td>
<td>4</td>
<td>Introduction to stochastic models and techniques</td>
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<td>including queueing theory. Simulation, non-linear</td>
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<td>programming, calculus of variations, and</td>
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<td>forecasting.</td>
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<td>IEMS 626</td>
<td>Linear Programming: PR: ENGR 442 or equivalent.</td>
<td>4</td>
<td>Theoretical and computational aspects of linear</td>
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<td>programming and related topics including simplex</td>
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<td>algorithms, duality theory, integer programming</td>
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<td>and stochastic linear programming. Applications</td>
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<td>to operational problems and computer solutions</td>
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<td>IEMS 627</td>
<td>Non-linear Programming: PR: IEMS 524. Study of non-linear</td>
<td>4</td>
<td>Non-linear models and their solution. Topics in</td>
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<td></td>
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<td>programming, separable programming, and geometric</td>
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<td>IEMS 628</td>
<td>Dynamic Programming: PR: IEMS 524. A study of the optimization of</td>
<td>4</td>
<td>Multistage decision processes based on the</td>
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<td>application of the principle of optimality.</td>
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<td>Stochastic and deterministic models are developed.</td>
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<td>IEMS 640</td>
<td>Systems Dynamics: PR: COMP 102 or equivalent. Industrial dynamics</td>
<td>4</td>
<td>Industrial dynamics and the use of computer-based</td>
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<td>and the use of computer-based simulation models</td>
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<td>for the improvement of management control systems.</td>
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<td>Use of Dynamo II computer simulation language.</td>
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<td>IEMS 641</td>
<td>Mathematical Systems Theory III: PR: IEMS 541.</td>
<td>4</td>
<td>Adaptation systems and trainable machines.</td>
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<td>Introduction to cybernetics and artificial</td>
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<td>intelligence.</td>
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<td>IEMS 662</td>
<td>Computer Simulation of Human Behavior: PR: IEMS 432, IEMS 461 or</td>
<td>3</td>
<td>Consideration of computer simulation techniques to</td>
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<td>C.I. Consideration of computer simulation</td>
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<td>techniques to model human performance. Evaluation</td>
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<td>of such models as stand alone programs or as</td>
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<td>components in system models.</td>
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<td>IEMS 667</td>
<td>Man - Computer Interaction: PR: IEMS 461 or C.I.</td>
<td>3</td>
<td>The elements of man-computer interactive systems;</td>
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<td>hardware and software considerations; requirements</td>
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<td>of CAI, CAD, and MIS applications; design</td>
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<td>difficulties found in these systems.</td>
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<td>IEMS 671</td>
<td>Public Works Economics: PR: ENGR 341 or equivalent.</td>
<td>3</td>
<td>Economic considerations in public works planning.</td>
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<td>The nature and objective functions of public</td>
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<td>works projects; cost estimating, cost allocation</td>
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<td>and pricing. Cost/benefit analysis on primary and</td>
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<td>secondary benefits from public works projects.</td>
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<td>IEMS 672</td>
<td>Urban Dynamics: PR: IEMS 540. Development of dynamic and</td>
<td>4</td>
<td>Use of computer simulation to analyze governmental</td>
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<td>community systems models. Use of computer</td>
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<td>simulation to analyze governmental and private</td>
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<td>sector policies in selected areas such as</td>
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<td>housing programs, industrial growth, worker</td>
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<td>training programs, environmental quality control,</td>
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<td>urban planning and land use planning.</td>
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MEAS 415  
Space Mechanics: PR: ENGR 311. Dynamics with applications to aeronautical and astronautical problems, orbits and trajectories, motion in a resisting medium, performance and optimization of multistage rockets.

MEAS 423  

MEAS 424  
Flight Vehicle Structures: PR: ENGR 312. Space structures; thin-walled structures; load factors; non-symmetrical bending and transverse shear; shear center and shear flow; semimonocoque construction, fuselage rings; multicelled structures; sandwich panels, fatigue.

MEAS 432  

MEAS 436  
Mechanical Power Systems: PR: MEAS 372. Analysis and design of large power generating systems and components thereof with emphasis on steam plants utilizing both chemical and nuclear fuels. Boiler, turbine, condenser, and auxiliary equipment design and performance analysis.

MEAS 441  
Engineering Design and Analysis: PR: MEAS 341 and Senior standing. Problem formulations and definition, inventiveness enhancement, generalized physical principles, numerical and computer methods and optimization techniques.

MEAS 451  

MEAS 482  

MEAS 511  
Aerodynamics: PR: MEAS 411 or equivalent. Advanced aerodynamic principles including fluid dynamics, potential flow theory, airfoil and finite wing theory.

MEAS 523  
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.
MEAS 537 3 (3, 0)
Energy Conversion: PR: MEAS 372 and PHYS 344. Unconventional methods of energy conversion; particular emphasis on fuel cells, thermoelectrics, thermionics, solar energy, photovoltaics, nuclear, and magnetohydrodynamics.

MEAS 538 3 (3, 0) F
Environmental Thermodynamics: PR: ENGR 431 or equivalent. Thermodynamics of the environment, computation of energy requirements; physiological reactions to the environment, air and gas distributions, control systems and cleaning of air and the atmosphere.

MEAS 542 3 (3, 0) W
Principles of Design: PR: MEAS 342 or equivalent. Engineering design algorithm, graphical and computer-aided kinematic synthesis and dynamic analysis. Machine materials and properties, tension, torsion, bending, and strength under combined stresses.

MEAS 581 3 (3, 0)

MEAS 611 3 (3, 0)
Aerodynamics: PR: MEAS 411 or equivalent. Theoretical methods useful for predicting performance and stability of thin lifting surfaces and slender vehicles at subsonic, supersonic and hypersonic speeds.

MEAS 613 3 (3, 0)

MEAS 632 3 (3, 0)
Turbomachinery: PR: MEAS 432 or MEAS 436 or equivalent. Application of the principles of fluid mechanics, thermodynamics and aerodynamics to the design and analysis of pumps, compressors, and turbines.

MEAS 641 3 (3, 0)
System Control: PR: ENGR 421 or equivalent. Theoretical, experimental and computer methods involved in the design of control systems. Emphasis on non-linear systems and advanced methods for control system analysis and optimization.

MEAS 642 3 (3, 0)
Computer-Aided Design: PR: Graduate standing. Study and engineering application of computer-aided approaches to component and system feasibility study and design considerations. Computer graphics.

MEAS 643 3 (3, 0) S

MEAS 653 3 (2, 2) F
Experimental Measurements: PR: C.I. Principles of operation, analysis and design of measurement systems for engineering applications with emphasis upon the measurement of environmental parameters.

MEAS 671 3 (3, 0)

MEAS 672 3 (3, 0)
Gas Dynamics II: PR: MEAS 671. Continuation of MEAS 671.

MEAS 673 3 (3, 0)
Transport Processes: PR: ENGR 431 or equivalent. Principles of the transport of mass, momentum and energy in fluids with applications to atmospheric and other environmental processes as well as equipment design.

MEAS 674 3 (3, 0) W
Mechanics of Viscous Flow I: PR: EMCS 471 or C.I. Principal concepts and methods for viscous fluid motion. Incompressible and compressible boundary layer analysis for laminar and turbulent flows.

MEAS 675 3 (3, 0)

MEAS 676 3 (3, 0)
Two Phase Flow: PR: C.I. General transport equations for multiphase systems including gas-liquid, gas-solid and liquid-solid systems.

MEAS 680 3 (3, 0)
Classical Thermodynamics: PR: MEAS 372 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.

MEAS 682 3 (3, 0)

MEAS 685 3 (3, 0) F
Conduction Heat Transfer: PR: EMCS 574. Application of principles of heat transfer to the solution of steady and transient conduction heat transfer problems. Classical and numerical solutions will be considered.

MEAS 686 3 (3, 0) W
Convection Heat Transfer: CR: EMCS 574 or C.I. Convective heat, mass and momentum transfer in laminar and turbulent flows. Emphasis on analysis and evaluation of heat transfer coefficients, heat exchanger theory and design.
MEAS 687 3 (3, 0) S

MEAS 688 3 (3, 0)

COLLEGE OF HUMANITIES AND FINE ARTS

ART

ART 201 3 (0, 6) F, W, S
Design Fundamentals I: Materials, processes, form. Application to product design, communication design, environmental design, and the visual arts. Stresses the value of planning and design in the development of a more humane civilization. Emphasis on two-dimensional design problems.

ART 202 3 (0, 6) F, W
Design Fundamentals II: Continuation of ART 201. Emphasis on color theory.

ART 203 3 (0, 6) F, W, S
Design Fundamentals III: Continuation of ART 202. Emphasis on three-dimensional design in the various sculptural media.

ART 204 3 (0, 6)
Film Design: A series of exercises in craft, technique, and design for the film, including animation.

ART 211 3 (0, 6) F, W
Drawing Fundamentals I: Drawing as a means of formal organization. Introduction to problems in drawing methods and media. Emphasis on descriptive techniques.

ART 212 3 (0, 6) W
Drawing Fundamentals II: Continuation of ART 211. Emphasis on traditions of spatial organization.

ART 221 3 (3, 0) F
The History of Art I: Painting, sculpture, and architecture from the Prehistoric Era through the Medieval Period.

ART 222 3 (3, 0) W
The History of Art II: Painting, sculpture, and architecture from the Renaissance to the 19th Century.

ART 223 3 (3, 0) S
The History of Art III: Painting, sculpture, and architecture of the 19th and 20th Centuries.

ART 231 4 (2, 4) F, W, S
Visual Arts Overview: An analysis of the characteristics and scope of visual arts. Recommended for credit toward the cultural and historical foundations section of the Environmental Studies Program.

ART 301 3 (2, 4)
Lettering: PR: Six hours of Design Fundamentals or C. I. Workshop study of the classical and historic types and styles.

ART 302 3 (2, 4)
Graphic Design I: PR: Six hours Design Fundamentals and ART
ART 301, or C.I. Principles of visual communication, methods, materials, and processes. Relationship of perceptual studies to graphic design.

ART 303 3 (2, 4)
Graphic Design II: PR: ART 302 or C.I. Development of studio techniques and problems stressing balance between articulation and succinct presentation of information.

ART 304 3 (2, 4)

ART 305 3 (0, 6)

ART 308 3 (0, 6)
Jewelry Design: PR: Consent of the instructor.

ART 311 3 (0, 6)

ART 321 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.

ART 322 3 (3, 0)
Asian Art: An introduction to the history of visual arts of China, Japan, India and other Eastern cultures.

ART 324 3 (3, 0)
History of Photography: The development of still photography in terms of its historical, aesthetic, and social impact on Western Culture from 1839 to the present.

ART 341 3 (0, 6) F, W, S
Photography: Consideration of basic technical and aesthetic factors in using still photography as a vehicle for visual, artistic expression.

ART 342 4 (3, 3)
Cinematography: PR: ART 201 or C.I. Consideration of basic technical and aesthetic factors involved in using motion pictures as a vehicle for visual, artistic expression.

ART 351 3 (0, 6) F, W, S
Painting: PR: Three quarter hours in Design Fundamentals and three quarter hours in Drawing Fundamentals or C.I.

ART 361 3 (0, 6)
Printmaking: PR: Three quarter hours of Drawing Fundamentals or C.I. Basic procedure and processes in printmaking. Formal and expressive characteristics of the print media.

ART 371 3 (0, 6) F, W, S
Sculpture: PR: Six quarter hours in Design Fundamentals, to include three quarter hours in three-dimensional work, or C.I.

ART 381 3 (0, 6)
Ceramics: PR: ART 203 or C.I. Basic concepts of ceramic design, experience in processes of forming, decorating, glazing, and firing pottery.

ART 391 3 (0, 6)
Experiments in Art and Technology: PR: Consent of Instructor.

ART 402 3 (2, 4)

ART 403 3 (2, 4)
Advanced Graphic Design II: PR: ART 402. Relatively large scale problems in existing media of graphic application. Pictorial and symbolic expression in creation of poster design, symbols, magazine and book cover design.

ART 404 3 (2, 4)
Advanced Graphic Design III: PR: ART 403. Workshop in Graphic Design: Individual problems providing students with an opportunity to initiate search for an independent formula of graphic design principles.

ART 405 3 (0, 6)
Advanced Three-Dimensional Design: PR: ART 305. May be repeated for credit. Advanced problems in three-dimensional materials, processes, form.

ART 408 3 (0, 6)
Advanced Jewelry Design: PR: ART 308. May be repeated for credit.

ART 409 3 (0, 6)
Fibers, Fabrics, Textiles and Synthetics: Textile design and production, including non-loom and loom weaving processes.

ART 410 3 (0, 6)
Metals, Woods, Leathers and Stones: Processes and techniques of production in these traditional craft materials.

ART 411 3 (0, 6)
Advanced Drawing: PR: ART 311. May be repeated for credit.

ART 425 4 (4, 0)
Religious Symbolism in the Visual Arts: A study of the origin, migration, and transmutation of religious signs, symbols and images in the history of art. (Same as HUM 425.)

ART 433 3 (3, 0)
Theory and Criticism of the Visual Arts: Criteria of criticism; analysis of works of art; elements of psychology and sociology of
art; semantics of critical terminology; relation of aesthetic meaning to reality and truth; emphasis on developments in the arts of the 20th Century.

**ART 434** 3 (3, 0)
Art and Technology: The impact of technological developments in the visual arts of the 20th Century.

**ART 435** 4 (4, 0)
Environmental Art: Analysis of aesthetic design factors, related to city planning, architecture, product design, and experimental environmental arts.

**ART 441** 3 (0, 6)
Advanced Photography: PR: ART 341. May be repeated for credit.

**ART 442** 4 (3, 3)
Advanced Cinematography: PR: ART 342. May be repeated for credit.

**ART 451** 3 (0, 6)
Advanced Painting: PR: ART 351. May be repeated for credit.

**ART 461** 3 (0, 6)
Advanced Printmaking: PR: ART 361. May be repeated for credit.

**ART 471** 3 (0, 6)
Advanced Sculpture: PR: ART 371. May be repeated for credit.

**ART 481** 3 (0, 6)
Advanced Ceramics: PR: ART 381. May be repeated for credit.

**ART 482** 3 (0, 6)
Advanced Experiments in Art and Technology: PR: ART 391. May be repeated for credit.

**ART 484** 3 (0, 6)
Senior Studio and Exhibition: PR: Senior Standing and consent of the studio area's faculty. Required of all art majors with a studio concentration.

**ENGLISH**

**ENG 100** 1 (1, 0)
Vocabulary Study: A word skills course for students wishing to improve their vocabulary.

**ENG 101** 4 (4, 0) F, W, S, Su
Composition I: Expository writing with emphasis on effective communication. Grammar and mechanics will not form a major part of this course; if the student is deficient, he will achieve proficiency through independent study. Writing topics to be based on selected readings.

**ENG 103** 3 (3, 0) F, W, S, Su
Current Literature: PR: ENG 101 or equivalent. Writing practice based on readings in contemporary prose and poetry selected to invite the interest of students in literature.

**ENG 201** 4 (4, 0) F, W, S
Literature of Modern Man: Reading and discussion of types and forms of modern literature. Satisfies section B of the cultural and historical foundation in the Environmental Studies Program.

**ENG 208** 3 (3, 0) F, W
Principles of Creative Writing: For freshman and sophomore students. An exploratory course in the several types of creative writing; group analysis of original writing; critical reading of established authors. May be repeated for credit.

**ENG 211** 3 (3, 0) F, Su
Survey of English Literature to 1625

**ENG 212** 3 (3, 0) F, W
Survey of English Literature, 1626-1798

**ENG 213** 3 (3, 0) W, S
Survey of English Literature, 1798-1914

**ENG 301** 3 (3, 0) F, W, S
Professional Report Writing I: Emphasis on clear expository writing of memoranda, reports and articles in the student's particular field.

**ENG 302** 3 (3, 0) F
Creative Writing Workshop I: PR: C.I. Practice in established forms: essay, short story, and poetry.

**ENG 303** 3 (3, 0) W
Creative Writing Workshop II: PR: ENG 302 or C.I. Individualized practice in writing in one of the established forms; analytic study of the work of pertinent authors.

**ENG 304** 3 (3, 0) S
Creative Writing Workshop III: PR: ENG 302 or C.I. Individualized practice in writing in one of the established forms; students who have completed ENG 303 will be expected to do intensive work in a different form from that practiced in the course; analytic study of the work of pertinent authors.

**ENG 305** 3 (3, 0)
Structure of Verse: Intensive study of the structural characteristics of English poetry, metrical systems, rhyme, scansion, and poetic rhetorical devices.

**ENG 306** 3 (3, 0)
Writing for Children: Practice in writing publishable literature for pre-school and elementary level children.

**Note on Freshman English Program:**
ENG 101 and 103 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 ENG 103. English Education and Library Science majors must complete ENG 201 before enrolling in any English courses numbered above 201 with the exception of ENG 301.
ENG 307  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.

ENG 308  Magazine Writing I: PR: ENG 307 or C.I. Structure and organization of articles, essays, profiles, and reviews; market analysis; data gathering.

ENG 309  Magazine Writing II: PR: ENG 308. Continuation of ENG 308.

ENG 310  Professional Report Writing II: Instruction and practice in scientific writing including preparation of scientific reports in the student's particular field.

ENG 311  Survey of American Literature, 1588-1865 3 (3,0) F

ENG 312  Survey of American Literature, 1865-1914 3 (3,0) W

ENG 313  Survey of American Literature Since 1914 3 (3,0) S

ENG 314  Survey of British Literature Since 1914 3 (3,0)

ENG 316  Continental European Fiction Since 1900: A selection of significant works of fiction written in various languages during the present century, read in translation.

ENG 317  World Literature I: Poetry, prose, and drama selected from ancient Hebrew, Greek, and Oriental literature and from that of Renaissance Europe.

ENG 318  World Literature II: Readings from Moliere, Voltaire, Goethe, Pushkin, Balzac, Tolstoy, Ibsen, Mann, Kafka, Camus, and others. Open to students who have not taken World Literature I.


ENG 321  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 361  Practical Criticism: Student evaluation of selected fiction, poetry, and drama through practical exercises in literary criticism.


ENG 400  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.

ENG 401  Writing Non-Fiction I: PR: Evidence of writing skill satisfactory to the instructor. Analysis of significant non-fiction; market research; intensive writing practice leading to a completed body of non-fiction writing suitable for publication.

ENG 402  Writing Non-Fiction II: PR: ENG 401. Continuation of ENG 401.

ENG 403  Writing Non-Fiction III: PR: ENG 402. Continuation of ENG 402.

ENG 404  Writing Fiction I: PR: Evidence of writing skill satisfactory to the instructor. Analysis of significant fiction; market research; intensive writing practice leading to a completed body of fiction writing suitable for publication.

ENG 405  Writing Fiction II: PR: ENG 404. Continuation of ENG 404.


ENG 407  Writing Verse I: PR: Evidence of writing skill satisfactory to the instructor. Analysis of significant poetry; market analysis; intensive writing practice leading to a completed body of verse suitable for publication.


ENG 409  Writing Verse III: PR: ENG 408. Continuation of ENG 408.

ENG 410  Ethnic Literature in America: Contributions of linguistic and ethnic groups of non-English origin to the literature of the United States.

ENG 415  Readings in Shakespeare: Reading and analysis of a selected group of comedies, histories, and tragedies for English Education majors.
ENG 421  
English Renaissance Literature I: Elizabethan poetry and prose, 1588-1603.  

ENG 422  
English Renaissance Literature II: Jacobean and Caroline poetry and prose, 1603-1642.  

ENG 423  
English Renaissance Literature III: Commonwealth poetry and prose, 1642-1660, including Milton.  

ENG 424  
Studies in Restoration English Literature: Literature of the Restoration.  

ENG 425  
English Literature, 1700-1745: Prose and poetry of the first half of the 18th Century.  

ENG 426  
English Literature, 1745-1798: Prose and poetry of the last half of the 18th Century.  

ENG 427  
Studies in 19th Century English Literature I: English literature from 1798 to 1832: the Romantic Triumph in poetry and prose.  

ENG 428  
Studies in 19th Century English Literature II: English literature from 1832 to 1870: the early Victorians.  

ENG 429  
Studies in 19th Century English Literature III: English literature from 1870 to 1914: later Victorians and transitional writers.  

ENG 430  
Chaucer: *The Canterbury Tales, Troilus and Criseyde*, and other works.  

ENG 431  
Shakespeare’s Comedies  

ENG 432  
Shakespeare’s Histories  

ENG 433  
Shakespeare’s Tragedies  

ENG 434  
Milton: *Paradise Lost, Paradise Regained, Samson Agonistes*, shorter poems, and selected prose.  

ENG 441  
English Drama to 1642 (exclusive of Shakespeare)  

ENG 442  
Restoration and 18th Century English Drama  

ENG 444  
The British Novel in the 18th Century  

ENG 445  
The British Novel in the 19th Century  

ENG 446  
The American Novel in the 19th Century  

ENG 451  
British and American Fiction Since 1900  

ENG 452  
British and American Poetry Since 1900  

ENG 453  
British and American Drama Since 1900  

ENG 460  
Historical Survey of Literary Criticism: Study of the major critics from classical antiquity through the modern era.  

ENG 461  
Literary Criticism from Plato to Johnson: PR: 12 hours of courses in literature numbered above 300.  

ENG 462  
Literary Criticism Since 1800: PR: 12 hours of courses in literature numbered above 300.  

ENG 471  
Modern English Grammar: Methods in the study of modern English grammar. Emphasis upon the analysis and comparison of traditional, structural, and transformational grammar.  

ENG 472  
History of the English Language: PR: ENG 371. Study of the English language and its development from Anglo-Saxon to Modern English. Attention given to Old, Middle, and Early Modern English grammar and syntax.  

ENG 473  
Transformational Grammar: PR: ENG 471. Introduction to philosophical basis of transformational grammar. Students will develop grammar for modern English.  

ENG 520  
Studies in Contemporary Fiction: Fiction of the last 20 years in the United States and Britain.  

FOREIGN LANGUAGES  

FL 323  
Comparative World Literature I: Masterworks of world literature in translation from the Book of Job to Cervantes. Authors represented include Homer, Sophocles, Cicero, Virgil, St. Augustine, Dante, Chaucer, Montaigne, and Shakespeare.  

FL 324  
Comparative World Literature II: Continuation of FL 323, from the Renaissance to the 20th Century, including works by Pascal, Milton, Rousseau, Goethe, Wordsworth, Poe, Balzac, Chekov,
Baudelaire, Yeats, Mann, and Camus. Need not be taken in sequence with FL 323.

**FRENCH**

**FRE 101**  
Elementary French Language and Civilization: Designed to initiate the student to the major language skills; listening, speaking, reading, and writing, in addition to an introduction to French culture.

**FRE 102**  

**FRE 103**  

**FRE 201**  
Intermediate French Language and Civilization: PR: FRE 103 or equivalent. Designed to continue development of language skills at the intermediate level, together with a review of grammar, study of syntax, idiomatic expressions, extensive readings and further study of French culture.

**FRE 202**  

**FRE 203**  
Intermediate French Language and Civilization: PR: FRE 202 or equivalent. Continuation of FRE 202 with greater emphasis on French civilization from the Middle Ages to the present.

**FRE 301**  
French Composition: PR: FRE 203 or equivalent. Development of skills in composition through systematic review of grammar, syntax, and development of style. Free and controlled written compositions required.

**FRE 303**  
French Conversation: PR: FRE 203 or equivalent. Development of skills in conversation and comprehension through practice and systematic review of phonology and grammatical structure.

**FRE 311**  
Survey of French Literature: PR: FRE 203 or equivalent. Main literary currents and works from the Middle Ages through the Renaissance.

**FRE 312**  
Survey of French Literature: PR: FRE 203 or equivalent. Main literary currents and works of the seventeenth and eighteenth centuries.

**FRE 313**  
Survey of French Literature: PR: FRE 203 or equivalent. Main literary currents and works of the nineteenth and twentieth centuries.

**FRE 321**  
Short Stories of 18th, 19th and 20th Centuries: PR: FRE 203 or equivalent. Selected readings designed to increase reading speed and develop analytical abilities. Authors include: Voltaire, Maupassant, Flaubert, Camus and others.

**FRE 401**  
French Phonetics and Diction: PR: FRE 303 or equivalent. French phonology with emphasis on phonic groupings.

**FRE 422**  
Seventeenth Century French Theater: PR: FRE 312. Corneille, Racine, and Moliere. A study of the lives and principal works of the authors.

**FRE 425**  

**FRE 431**  

**FRE 441**  

**FRE 442**  

**FRE 443**  

**FRE 451**  
Twentieth Century French Literature: Contemporary French drama and poetry.

**FRE 453**  

**FRE 481**  
Stylistics: PR: FRE 301 or equivalent. An intense study of textual criticism. An examination of the relationship between language and literature; explications and linguistic analysis of literary texts.

**GERMAN**

**GER 101**  
Elementary German Language and Civilization: Designed to initiate the student to the major language skills; listening, speaking, reading, and writing, in addition to an introduction to German culture.

**GER 102**  
Elementary German Language and Civilization: PR: GER 101 or
equivalent. Continuation of GER 101.

GER 103  
Elementary German Language and Civilization: PR: GER 102 or equivalent. Continuation of GER 102.

GER 201  
Intermediate German Language and Civilization: PR: GER 103 or equivalent. Designed to continue development of language skills at the intermediate level, together with a review of grammar, study of syntax, idiomatic expressions, extensive reading, and further study of German culture.

GER 202  
Intermediate German Language and Civilization: PR: GER 201 or equivalent. Continuation of GER 201.

GER 203  
Intermediate German Language and Civilization: PR: GER 202 or equivalent. Continuation of GER 202 with greater emphasis on German civilization from the Middle Ages to the present.

GER 301  
German Composition: PR: GER 203 or equivalent. Development of skills in composition through systematic review of grammar, syntax, and development of style. Free and controlled compositions required.

GER 303  
German Conversation: PR: GER 203 or equivalent. Development of skills in conversation and comprehension through practice and systematic review of phonology and grammatical structure.

GER 311  
Survey of German Literature I: PR: GER 203 or equivalent. Main literary currents and works from the Middle Ages through the Renaissance and Baroque.

GER 312  
Survey of German Literature II: PR: GER 203 or equivalent. Main literary currents and works of the 17th and 18th centuries.

GER 313  
Survey of German Literature III: PR: GER 203 or equivalent. Main literary currents and works of the 19th and 20th centuries.

GER 321  
Short Story: PR: GER 203 or equivalent. German short prose works of the 19th and 20th centuries.

HISTORY

HIST 201  
Western Culture and Civilization I: Rise of culture and civilization in the West from earliest times to the eve of the Renaissance.

HIST 202  
Western Culture and Civilization II: Continuation of HIST 201. Europe from its feudal-manorial state through the Napoleonic era.

HIST 203  
Western Culture and Civilization III: Continuation of HIST 202. The Romantic era, the influence of liberalism, nationalism, and modern industrialism upon political, social, economic, and intellectual life.

HIST 311  
American Economic History: An introduction to the economic development of the United States with emphasis upon agriculture, labor, industrialization, transportation, and banking.

HIST 312  
American Political History: An introduction to political life in the United States with emphasis upon the three branches of government, political parties, and the federal system.

HIST 313  
American Social History: An introduction to the effect of social change on Americans and their political institutions. Emphasis is placed on demographic, sexual and technological change.

HIST 320  
The Changing Frontier in American History: A survey of the types and geographic settings of the frontiers. Attention given to the impact of the frontier on American History.

HIST 322  
U.S. Constitutional History to 1865: 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.

HIST 323  
U.S. Constitutional History Since 1865: Post-war constitutional changes; the curious role of the 14th amendment; expansion of national power over the economy and civil rights; increasing popular belief in “Constitutionalism.”

HIST 324  
Black American History: The history of the Negro in Africa and in the United States. Emphasis is placed on the effects of an African heritage, slavery, and post-Civil War conditions on Black Americans. In addition, contemporary issues relating to Black Americans are analyzed.

HIST 326  
History of Florida to 1860

HIST 327  
History of Florida 1860 - Present

HIST 328  
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.

HIST 329  
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.

**HIST 330** 4 (4,0)

**HIST 331** 4 (4,0)
Latin American History: The 19th Century: Continuation of HIST 330.

**HIST 332** 4 (4,0)
Latin American History: The 20th Century: Continuation of HIST 331.

**HIST 401** 4 (4,0)
European Social and Intellectual History: 1650 - 1800: Science and political absolutism; the Enlightenment and the philosophes: secularism, cosmopolitanism and humanitarianism; the French Revolution; religious revival, and the beginning of romanticism.

**HIST 402** 4 (4,0)
European Social and Intellectual History: 1800-1917: Napoleon and nationalism; the new ideologies: conservatism, liberalism, romanticism, republicanism and socialism; urbanization, technology and mass culture; Social Darwinism and religious reawakening; Realpolitik, racism, imperialism and militarism.

**HIST 411** 4 (4,0)
United States History: to 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.

**HIST 412** 4 (4,0)
United States History: 1763-1789: The American Revolution — its origins, course, and impact upon American society — the Articles of Confederation, the Philadelphia Convention and its work.

**HIST 413** 4 (4,0)
United States History: 1789-1824: The writing of the Constitution, the Federalist decade, Jeffersonian Democracy, the War of 1812, and emergence of New Nationalism.

**HIST 414** 4 (4,0)
United States History: 1820-1860: Administration of Andrew Jackson to the Civil War.

**HIST 415** 4 (4,0)
United States History: 1860-1876: Civil War, Reconstruction, and impact of industrialism.

**HIST 416** 4 (4,0)
United States History: 1876-1918: The Agrarian Revolt, the Spanish-American War, and the Progressive Era.

**HIST 417** 4 (4,0)
United States History: 1914-1940: The Progressive Reforms of Woodrow Wilson, World War I, post-war prosperity, the Depression, and the New Deal.

**HIST 418** 4 (4,0)
United States History: 1941-Present: Contemporary America from World War II.

**HIST 420** 4 (4,0)
United States Diplomatic History: 1776-1914: The evolution of American foreign policy with stress upon the international background and the constitutional and political problems in planning policy.

**HIST 421** 4 (4,0)
United States Diplomatic History: 1914-Present: Continuation of HIST 420.

**HIST 422** 4 (4,0)
Social and Intellectual History of the United States to 1865: 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.

**HIST 423** 4 (4,0)
Social and Intellectual History of the United States Since 1865: The Darwinian Revolution and its ramifications; revolt of the intellectuals; the media explosion; mass entertainment in mass culture; the loss of community, the nuclear age, and presentism.

**HIST 424** 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.

**HIST 425** 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.

**HIST 435** 4 (4,0)
China in 19th and 20th Centuries: The Mongols in China; coming of the Europeans; social structure; Communist movement; Japanese aggression.

**HIST 439** 4 (4,0)
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.

**HIST 441** 4 (4,0)
German-Speaking Europe: 1648-1890: The Thirty Years' War to 1890 including the Hapsburg Monarchy until 1866.

**HIST 442** 4 (4,0)
German-Speaking Europe: 1890-Present: Bismarck to the present.

**HIST 445** 4 (4,0)
Europe in the 20th Century: 1900-1929

**HIST 446** 4 (4,0)
Europe in the 20th Century: 1930-1945
HIST 447  Europe in the 20th Century: 1945-Present  4 (4, 0)
HIST 453  Early Middle Ages: A survey of social, economic, political, religious, and cultural developments in Europe from the fall of Rome to the 10th century.  4 (4, 0)
HIST 454  Late Middle Ages: A survey of social, economic, political, religious, and cultural developments in Europe from the 10th to the 13th centuries.  4 (4, 0)
HIST 455  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.  4 (4, 0)
HIST 457  French Revolution and the French Imperium, 1789-1815: Causes and course of the revolution; the rise and fall of Napoleon; impact on the thought and action of Western Europe.  4 (4, 0)
HIST 458  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.  4 (4, 0)
HIST 459  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.  4 (4, 0)
HIST 461  English History to 1485  4 (4, 0)
HIST 462  English History: 1485-1815  4 (4, 0)
HIST 463  British History: 1815-Present  4 (4, 0)
HIST 464  British Empire and Commonwealth: Development of the British Empire and Commonwealth since the American Revolution.  4 (4, 0)
HIST 466  British History: Tudor-Stuart Period: A study of the Tudor-Stuart period, with particular emphasis on the civil/religious conflicts of the time.  4 (4, 0)
HIST 470  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.  4 (4, 0)
HIST 471  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.  4 (4, 0)
HIST 472  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.  4 (4, 0)
HIST 473  Soviet Foreign Policy: 1917 to Present: Begins with Comintern policy, establishment of relations with capitalist countries, rise of Fascism, World War II, post-Stalin foreign policy.  4 (4, 0)
HIST 480  History and Historians: PR: C.l. A study of European and/or American historiography. May be repeated once for credit.  4 (4, 0)
HIST 501  Studies in American History: PR: Senior or graduate classification and permission of instructor. Advanced investigations into specific areas of American History. May be repeated for credit provided the topic under consideration is different.  2-5 (2-5, 0)
HIST 510  Studies in World History: PR: Senior standing or graduate classification and C.l. Advanced investigations into specific areas of World History. May be repeated for credit provided the topic under consideration is different.  2-5 (2-5, 0)

HUMANITIES

HUM 201  Western Humanities Survey: A series of lectures on each of the major cultural epochs, designed to give the student a historical perspective and to equip him to select periods for intensive study from the Mind-and-Art Series.  4 (4, 0) F, W, S, Su
HUM 300  The Hebrew and Christian Heritage: The religious, literary, and artistic influences of early Judaism and Christianity on Western Culture; their basis in the social and political context of the Fertile Crescent. (Same as REL 300.)  4 (4, 0) F, W, S
HUM 301  The Mind and Art of Greece: The principal monuments in philosophy, architecture, drama, poetry, and sculpture from the Minoan-Mycenaean to the Hellenistic Age.  4 (4, 0) F, W, S
HUM 304  The Mind and Art of Rome: Contributions to law, literature, architecture, and the ordering of culture, from the Etruscan period to the Age of Constantine.  4 (4, 0) W, S
HUM 305  Mind and Art of the Middle Ages: The merging of Classical, Christian, and Germanic influences during the age of faith, from St. Augustine to Dante; their expression in stone, in music, in poetry, in painting, and in philosophy.  4 (4, 0) F, W, S
HUM 306 4 (4, 0) F, W, S
Mind and Art of the Renaissance: The rebirth of humanistic art and free inquiry, particularly in Italy, from Giotto to Titian, with emphasis on the Neo-Platonic Academy, polyphonic music, and visual realism.

HUM 307 4 (4, 0) F, S
Reformation and Early Baroque Era: The growth of humanism and Protestantism in the North, Mannerism and Counter Reformation in the South; the age of Cervantes, Shakespeare, El Greco, and Bernini in the arts.

HUM 308 4 (4, 0) F, W
Enlightenment and Late Baroque: Literary and philosophical landmarks in the age of rational confidence and Newtonian astronomy; the music of Bach and Handel; the rise of a bourgeois and Rococo style in art.

HUM 309 4 (4, 0) F, W, S
Revolution and Romanticism: The intellectual and artistic tension between freedom and order, between pastoral and urban, between humanitarian reform and the appeal of the past, from Rousseau to Darwin; the great era of music from Haydn to Wagner.

HUM 310 4 (4, 0) F, W, S
Mind and Art of the Recent Past: The influence of evolution, science, and utilitarian thought on various literary, artistic, and musical styles from the mid-19th Century to World War I.

HUM 311 4 (4, 0) S
Egypt and the Near East: The life and thought of ancient civilizations as revealed through art and archaeology.

HUM 315 4 (4, 0)
China and Japan: A study of the highest achievements in art, literature, and thought; an examination of the philosophical, spiritualist, and rationalistic foundations of Confucianism, Taoism, Zen, and Shintoism. (Same as REL 315.)

HUM 317 4 (4, 0) W
India: The cultural traditions and the principal monuments in art and literature; a study of Hindu and Buddhist religious thought as it developed in India and Southeast Asia. (Same as REL 317.)

HUM 318 4 (4, 0) F
Islamic Cultures: An inquiry into the foundations and development of Islamic thought and culture in various geographical locations. (Same as REL 318.)

HUM 321 4 (4, 0) S
Art and Thought of Eastern Europe: Literature, philosophy, music, and art from the 19th and 20th centuries, including works by Dostoevsky, Babel, Kazantzakis, Moussorgski, Bartok, Brancusi, Kandinsky, and Chagall.

HUM 335 4 (4, 0)
Afro-American Culture: The artistic influence of the Negro in America.

HUM 351 4 (4, 0)
Latin-American Cultures: The art and archaeological remains of Inca, Mayan, and Aztec civilizations; their influences on Latin-American music, art and literature.

HUM 355 4 (4, 0)
American Arts and Ideas I: Philosophical, artistic, and literary expressions of the American character, as molded by Puritanism, transcendentalism, optimism, evangelism, and the romance of the West.

HUM 356 4 (4, 0)
American Arts and Ideas II: The later development of American thought and art, emphasizing evolution, pragmatism, nostalgia, religious reform, and the vernacular in the arts. Need not be taken in sequence with HUM 355.

HUM 371 4 (4, 0) F
Contemporary Culture I: An integrated view of the fine arts and literature of our time, revealing the impact of depersonalization, alienation, revolt, and the search for self-awareness.

HUM 372 4 (4, 0) W
Contemporary Culture II: The popular arts of our time—jazz, photography, science fiction, television, and film—as they reflect the influences of technology, relativism, protest, and innovation.

HUM 413 4 (4, 0)
The Romantic Mood: The Romantic spirit in various cultural settings; examples from the art, music, and literature of Greece, Rome, France, Spain, England and Germany.

HUM 415 4 (4, 0)
Cultural Influences, East and West: A comparative study of Eastern and Western cultures, emphasizing their approaches to human problems. Primary works in art, philosophy, and literature may be considered.

HUM 421 4 (4, 0) Su
Purposes of Art: An introduction to the history and appreciation of the visual arts through an understanding of the various purposes art has fulfilled in man's effort to master and enjoy his environment. For visual arts education majors as well as for humanities majors.

HUM 425 3 (3, 0)
Religious Symbolism in the Visual Arts: A study of the origin, migration, and transmutation of religious signs, symbols and images in the history of art. (Same as ART 425.)

HUM 441 4 (4, 0) S
Purposes of Music: Religious and social functions of music and its relationships with other arts.

HUM 451 4 (4, 0)
The Hero in the Arts: Images of the ideal man or hero in various cultural settings, as exemplified in the epic, monumental sculpture, portrait painting, and the symphonic poem.
HUM 455 4 (4, 0)
The Tragic View: The tragic experience as seen in religion, history, sculpture, painting, opera, drama and other forms, including essays on the meaning and theory of tragedy.

HUM 459 4 (4, 0)
The Comic View: The comic spirit in satirical painting, grotesque sculpture, burlesque opera, literary satire, the musical joke, and drama, with some attention to theory and history.

HUM 461 4 (4, 0)
The Secular View: Examination of the philosophical foundations of secularism and of literary and political humanism, based on the work of Erasmus, Montaigne, Voltaire, Hobbes, Locke and Rousseau. (Same as PHI 461.)

HUM 467 4 (4, 0) W
Mythology: An examination and interpretation of myths dealing with gods, divine heroes, and sacred events. (Same as REL 471.)

HUM 473 4 (4, 0) F
The Religious Quest: A study of major religious statements from the desert Fathers to Kafka and Kazantzakis, and of the human and cultural circumstances from which they emerged. (Same as REL 473.)

HUM 477 4 (4, 0)
Mysticism: The modes and aims of the mystic, both Eastern and Western, as seen in art, music, and literature. (Same as REL 477.)

HUMANITIES AND FINE ARTS

HFA 490 2 (2, 0)
Senior Seminar: Humanities and Arts in Human Affairs: A forum on the art and thought of the contemporary world as they provide insight into the recurring problems of human existence and as they relate to the search for fulfillment, self-awareness, and wholeness. Primarily intended for senior students. Offered as one of the Advanced Environmental Studies seminars. Not open to students majoring in the College of Humanities and Fine Arts.

ITALIAN

ITA 101 3 (3, 1)
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.

ITA 102 3 (3, 1)
Elementary Italian Language and Civilization: PR: ITA 101 or equivalent. Continuation of ITA 101.

ITA 103 3 (3, 1)
Elementary Italian Language and Civilization: PR: ITA 102 or equivalent. Continuation of ITA 102.

MUSIC

MUS 100 0 (3, 0) F, W, S, Su
Music Forum: A series of special musical events required of music majors. Includes lectures and recitals by faculty, students, and guest artists.

MUS 101 3 (0, 3) F
Music Fundamentals: Introduction to basic musical elements, development of the student's skills in writing, performance, and analysis. Credit not applicable toward music degree.

MUS 102 3 (0, 3) W

MUS 103 3 (0, 3) S

MUS 104 1 (1, 1) F, W, S, Su
Secondary Performance: 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.

MUS 105 1 (0, 2) F, W, S, Su
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.

MUS 106 1 (0, 2) F, W, S, Su
Class Piano II: PR: MUS 105 or C.I. Not open to music majors whose major performing medium is piano. May be repeated for credit.

MUS 107 1 (0, 2) F, W, S, Su
Class Piano III: PR: MUS 106 or C.I. Preparation for the piano proficiency examination. May be repeated for credit.

MUS 108 1 (1, 1) F, W, S, Su
Class Piano IV: PR: MUS 107 or C.I. Individualized instruction. Credit applicable toward music degree by non-piano majors; open to non-music majors. May be repeated for credit.

MUS 201 4 (2, 4) F
Musicianship: PR: MUS 103 or Satisfactory placement test. Required of music majors; writing, performance, analysis of music; emphasis on present-day experimental music and twentieth century music.

MUS 202 4 (2, 4) W
Musicianship: PR: MUS 201. Continuation of MUS 201.

MUS 203 4 (2, 4) S

MUS 204 4 (1, 7) F, W, S, Su
Principal Performance I: PR: Faculty jury. Required of music majors; private and class lessons plus assigned major assigned major performing organization and chamber music ensemble. May be repeated for credit.
MUS 210
Enjoyment of Music: Open only to non-music majors. Instruction designed to develop an understanding of basic musical principles and improved techniques for listening to music.

MUS 301
Musicanship: PR: MUS 203. Required of music majors; continuation of MUS 201-203; writing, performance, analysis of music of seventeenth-nineteenth centuries as related to present-day music.

MUS 302
Musicanship: PR: MUS 301. Continuation of MUS 301.

MUS 303

MUS 304
Principal Performance II: PR: Necessary competence at MUS 204 level determined by faculty jury. Required of music majors. May be repeated for credit.

MUS 305
Major Performing Organizations: PR: C.I. Open to all students. Study and performance of music for large ensembles. May be repeated for credit; credit not applicable toward music degree.

MUS 306
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 401
Musicanship: PR: MUS 303. Required of music majors; continuation of MUS 301-303; writing, performance, analysis of Western European music to 1600 as related to present-day music.

MUS 402

MUS 403

MUS 404
Principal Performance III: PR: Satisfactory piano proficiency examination and necessary competence at MUS 304 level determined by faculty jury. Required of music majors. May be repeated for credit.

MUS 474
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.

MUS 484
Principal Performance IV: PR: Necessary competence at MUS 404 level determined by faculty jury. Required of music majors. May be repeated for credit.

PHILOSOPHY

PHI 105
Non-Formal Logic: 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 205
Formal Logic I: Analysis of logical form and of procedures used in deductive inference, of the kind underlying mathematical reasoning.

PHI 221
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 305
Formal Logic II: PR: PHI 205. Systematic study of propositional and first-order predicate logic; logistic systems and axiomatic methods; problems of metatheory, including consistency, completeness and decidability.

PHI 312
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.

PHI 314
Problems in Contemporary Philosophy: Prominent issues in philosophies of the 20th century, apart from existentialism: logical positivism, linguistic analysis, phenomenology, and pragmatism.

PHI 331
Ethics: An examination of the nature of moral problems, judgments and principles with an emphasis on recent formulations in ethical theory.

PHI 341
Aesthetics: An investigation into the nature of human artistic experience with special reference to the problems of creativity.

PHI 405
Philosophy of Religion: An examination of basic ideas, beliefs, attitudes and functions of religion; the significance of religion in human experience.

PHI 407
Philosophy of Literature: An examination of fictional and non-fictional prose as it determines and reflects social, political, economic, and religious institutions. Includes works by Sartre, Feuchtwanger, and Zola.

PHI 409
Philosophy of Science: An examination of the conceptual foundations and methodology of modern science.
PHI 461 4 (4, 0)
The Secular View: Examination of the philosophical foundations of secularism and of literary and political humanism, based on the work of Erasmus, Montaigne, Voltaire, Hobbes, Locke, and Rousseau. (Same as HUM 461.)

RELIGION
REL 300 4 (4, 0) F, W, S
The Hebrew and Christian Heritage: Same as HUM 300.
REL 315 4 (4, 0)
The Religious Heritage of China & Japan: Same as HUM 315.
REL 317 4 (4, 0) W
The Religious Heritage of India: Same as HUM 317.
REL 318 4 (4, 0) F
The Religious Heritage of Islam: Same as HUM 318.
REL 321 4 (4, 0)
Religion in America: The effect of Puritan, Quaker, Anglican, and Catholic traditions on various regions; the phenomenon of evangelism; the rise of new sects such as Mormonism.
REL 441 4 (4, 0)
REL 471 4 (4, 0) W
Mythology: An examination and interpretation of myths dealing with gods, divine heroes, and sacred events. (Same as HUM 471.)
REL 473 4 (4, 0) F
The Religious Quest: A study of major religious statements from the desert Fathers to Kafka and Kazantzakis, and of the human and cultural circumstances from which they emerged. (Same as HUM 473.)
REL 477 4 (4, 0)
Mysticism: The modes and aims of the mystic, both Eastern and Western, as seen in art, music, and literature. (Same as HUM 477.)

RUSSIAN
RUS 101 3 (3, 1)
Elementary Russian Language and Civilization: Designed to initiate the student to the major language skills; listening, speaking, reading, and writing, in addition to an introduction to Russian culture.
RUS 102 3 (3, 1)
RUS 103 3 (3, 1)
Elementary Russian Language and Civilization: PR: RUS 102 or equivalent. Continuation of RUS 102.
RUS 201 3 (3, 1)
Intermediate Russian Language and Civilization: PR: RUS 103 or equivalent. Designed to continue development of language skills at the intermediate level, together with a review of grammar, study of syntax, idiomatic expressions, extensive reading, and further study of Russian culture.
RUS 202 3 (3, 1)
Intermediate Russian Language and Civilization: PR: RUS 201 or equivalent. Continuation of RUS 201.
RUS 203 3 (3, 1)
Intermediate Russian Language and Civilization: PR: RUS 202 or equivalent. Continuation of RUS 202 with greater emphasis on Russian civilization from the Middle Ages to the present.
RUS 301 4 (4, 0)
Russian Composition: PR: RUS 203 or equivalent. Development of skills in composition through systematic review of grammar, syntax, and development of style. Free and controlled written compositions required.
RUS 303 4 (4, 0)
Russian Conversation: PR: RUS 203 or equivalent. Development of skills in conversation and comprehension through practice and systematic review of phonology and grammatical structure.

SPANISH
SPA 101 3 (3, 1)
Elementary Spanish Language and Civilization: Designed to initiate the student to the major language skills; listening, speaking, reading, and writing, in addition to an introduction to Spanish culture.
SPA 102 3 (3, 1)
Elementary Spanish Language and Civilization: PR: SPA 101 or equivalent. Continuation of SPA 101.
SPA 103 3 (3, 1)
Elementary Spanish Language and Civilization: PR: SPA 102 or equivalent. Continuation of SPA 102.
SPA 201 3 (3, 1)
Intermediate Spanish Language and Civilization: PR: SPA 103 or equivalent. Designed to continue development of language skills at the intermediate level, together with a review of grammar, study of syntax, idiomatic expressions, extensive reading, and further study of Spanish culture.
SPA 202 3 (3, 1)
Intermediate Spanish Language and Civilization: PR: SPA 201 or equivalent. Continuation of SPA 201.
SPA 203
Intermediate Spanish Language and Civilization: PR: SPA 202 or equivalent. Continuation of SPA 202 with greater emphasis on Spanish civilization from the Middle Ages to the present.

SPA 301
Spanish Composition: PR: SPA 203 or equivalent. Development of skills in composition through systematic review of grammar, syntax and development of style. Free and controlled written composition required.

SPA 303
Spanish Conversation: PR: SPA 203 or equivalent. Development of skills in conversation and comprehension through practice and systematic review of phonology and grammatical structure.

SPA 311
Survey of Spanish Literature: PR: SPA 203 or equivalent. Main literary currents and works from the Middle Ages through the Renaissance and Baroque.

SPA 312
Survey of Spanish Literature: PR: SPA 203 or equivalent. Main literary currents and works of the eighteenth and nineteenth centuries.

SPA 313
Survey of Spanish Literature: PR: SPA 203 or equivalent. Main literary currents and works from the Generation of 1898 to the present.

SPA 316
Survey of Latin-American Literature I: PR: SPA 203 or equivalent. Main literary currents and works from the colonial period to the nineteenth century.

SPA 317
Survey of Latin-American Literature II: PR: SPA 203 or equivalent. Main literary currents and works of the nineteenth century.

SPA 318
Survey of Latin-American Literature III: PR: SPA 203 or equivalent. Main literary currents and works of the twentieth century.

SPA 401
Spanish Phonetics and Diction: PR: SPA 303 or equivalent. Spanish phonology with emphasis on phonic groupings.

SPA 421

SPA 423
Cervantes I: PR: SPA 311. Don Quixote (Part I).

SPA 424
Cervantes II: PR: SPA 311. Don Quixote (Part II).

SPA 441

SPA 442

SPA 443

SPA 451

SPA 452
Twentieth Century Spanish Literature: PR: SPA 313. Contemporary Spanish drama and poetry.

THEATRE

THA 180
Study of Drama and Theatre: Nature of drama and the theatre and basic principles of play analysis.

THA 210

THA 230
Interpretation I: Analysis of thought; development of imagination; oral presentation of literary forms; individual problems in interpretive reading. (Recommended for students majoring in English and preparing to teach literature.)

THA 240

THA 241
Stage Carpentry: Special approaches to construction, painting, rigging, and operation of stage scenery.

THA 242
Stage Properties: Design, construction, operation, and management of stage properties. History, style, and decoration of practical, scenic, and hand properties.

THA 280
Introduction to Acting: Prepares the beginning actor for University Theatre productions. Emphasis on movement, motivation,
voice, characterizational techniques, makeup, and other basic requirements for acting.

THA 290          2 (0, 15)
Theatre Practicum: PR: C.I. Open to all students interested in participating in productions of University Theatre. Student will have the opportunity for supervised work in all phases of theatrical production. May be repeated for credit.

THA 310          4 (4, 0)
History of the Motion Picture: Development of the film industry; its social and economic impact. (Same as COM 310.)

THA 330          3 (3, 0)
Interpretation II: PR: THA 230 or the equivalent and junior standing. Selecting and abridging literary material for platform use; preparation and presentation of program for special and general occasions.

THA 331          3 (3, 0)
History of the Theatre: Classic and Renaissance: Development of theatre art from the earliest times through the sixteenth century.

THA 332          3 (3, 0)
History of the Theatre 17th and 18th Centuries: Development of theatre art from the Renaissance through the neo-classic period to the beginning of the Romantic Period.

THA 333          3 (3, 0)
History of the Theatre: 19th and 20th Centuries: Development of theatre art from the Romantic Period to the modern theatre.

THA 335          3 (3, 0)
Oral Interpretation for Performance: PR: THA 230. The application of interpretation techniques to Readers Theatre and Chamber Theatre productions. Some public performances required.

THA 336          3 (3, 0)

THA 341          4 (4, 0)
Drama Development I: A study of dramatic works in translation of the Greeks, Romans, and the Medieval Theatre. Extensive readings in the plays of these periods should be expected.

THA 342          4 (4, 0)
Drama Development II: A study of dramatic works in translation of the French, German, Spanish, and Italian theatres in the 16th and 17th centuries. Extensive readings in the plays of these periods should be expected. Continuation of THA 341.

THA 343          4 (4, 0)
Drama Development III: Continuation of THA 341-342 tracing the development of dramatic works in translation of the 18th and 19th centuries. Extensive readings of plays from the French, German, English, Spanish, Italian, and Russian theatres.

THA 350          4 (4, 0)
Theatrical Costume: History and Theory: Historical costume for theatre purposes; period costume in relation to social and cultural development. Fabric, silhouette, color and decoration as related to theatrical characterizations.

THA 351          4 (2, 2)
Costume and Makeup Techniques: Analysis, design, construction, and management of costume and makeup in the theatre.

THA 375          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.

THA 380          3 (3, 0)
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. (Laboratory hours to be arranged, and work in departmental productions.)

THA 381          4 (4, 0)
Scene Design I: Study and practice of scene design; perspective drawing, fundamentals of design, and techniques of scene painting. (Service on crew as required.)

THA 382          4 (4, 0)
Stage Lighting: PR: Junior standing. Study of stage lighting techniques, practices, and equipment. (Service on light crew is required.)

THA 390          2 (0, 15)
Theatre Practicum II: PR: THA 290 or C.I. Primarily an activity course. Student will serve as crew head or in some position of responsibility in production. May be repeated for credit.

THA 421          3 (3, 0)
Dramatic Theory: PR: C.I. The theory and philosophy of the theatre; analysis of various types of plays, both modern and historical, from the point of view of their production on a stage.

THA 422          4 (4, 0)
High School Play Directing: Introduction to the theory and practice of directing and producing, with particular emphasis upon methods practicable in high school and junior college play production.

THA 423          3 (3, 0)
Contemporary Theatre and Drama: Trends in theatrical production and dramatic literature in Italy, France, Germany, Russia, and the Scandinavian countries.

THA 424          4 (4, 0)
Principles of Motion Picture Art: PR: THA 310 or C.I. Aesthetic consideration of the motion picture as art; critical criteria and stylistic comparisons are established through the viewing of films, reading assignments, and discussion.
THA 425 3 (3, 0)
Dramatic Criticism: PR: C.I. Analysis of the nature of past and present day criticism of the drama; practical work in such criticism.

THA 431 3 (3, 0)

THA 434 4 (4, 0)
Modern Motion Picture Technique: PR: THA 310 or C.I. An examination of the techniques of motion picture as art; directing, acting, editing, writing, cinematography.

THA 441 4 (4, 0)

THA 480 3 (3, 0)
Directing II: PR: THA 380. Further theories and techniques of play direction, study of dramatic values, plot structure, style, mood, composition, and directing approach. Each student will direct scenes in class and laboratory and serve as assistant director or stage manager of a major production.

THA 481 3 (3, 0)
Acting II: PR: THA 280. Study and practical experience in creating roles in plays of different types, style, and period, with emphasis on developing flexibility of actor's equipment. (Laboratory hours to be arranged and work in departmental productions.)

THA 483 4 (4, 0)
Advanced Scene Design: A continuation of THA 381 in which the emphasis is placed on independent planning and execution of a scene design. The student will be expected to work with the production group on a selected production.

THA 486 3 (3, 0)
American Theatre and Drama: 19th and 19th Centuries: An examination of the social, cultural and economic influences on the American drama and theatre. Trends in theatrical production and dramatic types, Revolutionary Drama, Social Comedy, Romantic Verse Drama, ethnic characters, and Naturalism.

THA 487 3 (3, 0)
American Theatre: 20th Century: A continuation of THA 486, with emphasis placed upon the aesthetic and literary development of the theatre in this century. The New Stagecraft, Agitprop Theatre, Federal Theatre, Antiwar Drama, the Absurdist and the avant-garde theatres will be dealt with in detail.

THA 488 3 (3, 0)
Creative Dramatics and Children's Theatre: An introduction to the aesthetical and psychological bases of theatre production for

and by young people. The production of children's theatre, play selection, scenery, costumes, management, and touring.

THA 489 3 (3, 0)
# COLLEGE OF NATURAL SCIENCES

## ALLIED HEALTH SCIENCES

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHS 100</td>
<td>1</td>
<td>W</td>
<td>Allied Health Sciences Orientation: A survey of the allied health sciences; opportunities and scope of the field.</td>
</tr>
<tr>
<td>AHS 320</td>
<td>3</td>
<td>F</td>
<td>Hospital Organization and Administration I: PR: Junior standing. Organization patterns in hospitals, clinics, and community health agencies, medical staff organization; principles and practices of administration.</td>
</tr>
<tr>
<td>AHS 340</td>
<td>3</td>
<td>W</td>
<td>Introduction to Disease I: Nature and cause of disease, treatment, and management of patients in major clinical areas of medicine.</td>
</tr>
<tr>
<td>AHS 350</td>
<td>3</td>
<td>W</td>
<td>Medical Legal Jurisprudence: Principles of law as applied to the health field with special reference to health practices.</td>
</tr>
<tr>
<td>AHS 375</td>
<td>3</td>
<td>S</td>
<td>Recent Advances in Medicine: A review of new discoveries and treatments in the medical field.</td>
</tr>
</tbody>
</table>

## BIOLOGY

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 100</td>
<td>4</td>
<td>F, W, Su</td>
<td>General Biology: Basic principles emphasizing the unifying concepts of biology and their relationships to diversity in living organisms. Recommended for majors, allied health sciences, and preprofessional students.</td>
</tr>
<tr>
<td>BIOL 103</td>
<td>4</td>
<td>F, S</td>
<td>Biological Principles: An integrated approach to life processes and their relationships among diverse organisms including man. Not open to students with credit in BIOL 100, majors in biology, allied health sciences, or preprofessional students.</td>
</tr>
<tr>
<td>BIOL 105</td>
<td>4</td>
<td>W</td>
<td>Biology and Environment: PR: BIOL 100 or BIOL 103. Biological implications of the interaction among human society, population, and technology in relation to the environment and natural systems. Designed for non-majors.</td>
</tr>
<tr>
<td>BIOL 303</td>
<td>3</td>
<td>W</td>
<td>Biology and Society: PR: Junior standing. Biological concepts applied to current human problems - food production, pollution, disease, extinction, and disrupted ecosystems. Designed for non-majors.</td>
</tr>
<tr>
<td>BIOL 305</td>
<td>3</td>
<td>S</td>
<td>Biological Nature of Man: PR: Junior standing. Man's behavior, reproduction, development, diversity, heredity, evolution, population control, aggression, and biological needs in contemporary society.</td>
</tr>
<tr>
<td>BIOL 350</td>
<td>4</td>
<td>F</td>
<td>Principles of Ecology: PR: 12 hours in biological sciences. Elements of ecosystems, biogeochemical cycling, environmental factor interactions, population dynamics and evolution, communities, and succession.</td>
</tr>
<tr>
<td>BIOL 360</td>
<td>4</td>
<td>F, S</td>
<td>Genetics: PR: BIOL 100. Basic principles of heredity as applied to plants and animals. Laboratory will emphasize work with Drosophila.</td>
</tr>
<tr>
<td>BIOL 363</td>
<td>4</td>
<td>F, W</td>
<td>Genetics and Man: PR: BIOL 100 or 103. Basic principles of genetics as illustrated by human heredity.</td>
</tr>
<tr>
<td>BIOL 375</td>
<td>5</td>
<td>S</td>
<td>Biology of Marine Organisms: PR: 12 hours in biological sciences. A study of marine organisms and the interrelationships with their environment.</td>
</tr>
<tr>
<td>BIOL 450</td>
<td>5</td>
<td>F</td>
<td>Limnology: PR: BIOL 350 or C.I. Introduction to principles of limnology and methods for freshwater ecology with respect to physical, chemical and biological parameters.</td>
</tr>
<tr>
<td>BIOL 451</td>
<td>5</td>
<td>W</td>
<td>Freshwater Systems: PR: BIOL 450 or C.I. Primary and secondary productivity and interaction among factors such as nutrients, pollutants, temperature radiation, turbidity, and seasons.</td>
</tr>
<tr>
<td>BIOL 460</td>
<td>3</td>
<td>F</td>
<td>Organic Evolution: PR: 11 hours in biological sciences including BIOL 360. An outline of evolutionary principles, natural selection and phylogeny; origin of variation and origin of species.</td>
</tr>
<tr>
<td>BIOL 470</td>
<td>3</td>
<td>S</td>
<td>History of Biology: PR: Junior standing. People and events from Aristotelian times to the present; development of the science of biology.</td>
</tr>
</tbody>
</table>
| BIOL 519 | 5     | W    | Experimental Methods for Organismic Biology: PR: BIOL 332 or MICR 430; CHEM 325 and 444. Biochemical and biophysical
Botany

BOT 100  General Botany: PR: BIOL 100 or BIOL 103. Introduction to botany; plant structure and function, including a survey of the plant kingdom giving special emphasis to forms important to man.

BOT 310  Botanical Microtechnique: PR: BOT 100. Methods for preparation and staining of plant materials for microscopic study.

BOT 320  Comparative Morphology of Plants: PR: BOT 100. A sequential survey of the algae, fungi, bryophytes, ferns, fern allies, gymnosperms and flowering plants, with emphasis on evolutionary relationships, structure and function.

BOT 325  Plant Anatomy: PR: BOT 100. A study of the development, structure and function of the principle organs and tissues of vascular plants.

BOT 330  Plant Physiology: PR: BIOL 332 or C.I. Chemical and physical activities of plants; absorption, transpiration, mineral nutrition, photosynthesis and growth.

BOT 345  Plant Taxonomy: PR: BOT 100. An introduction to systematics, classification and identification of vascular plants with emphasis on the flora of peninsular Florida.

BOT 371  Plants and Man: PR: BOT 100. Provides a broad understanding of the various plant groups and their economic importance to man; designed primarily for non-majors.

BOT 372  Plants and the Urban Environment: The selection, placement, propagation and care of ornamental plants in residential, commercial and industrial areas.

BOT 441  Phycology: PR: BOT 320 or C.I. A lecture-laboratory course to cover the major groups of algae, including freshwater algae.

BOT 443  Mycology: PR: BOT 320, MICR 200 or C.I. A lecture-laboratory course to cover the major groups of fungi, treating their morphology, and classification emphasizing those of special importance to man.

BOT 451  Plant Ecology: PR: BOT 345 or C.I. Role of soils and climate in relation to succession and composition of diverse plant communities.

BOT 453  Plant Geography: PR: BIOL 350 or BOT 451 or C.I. Major climatic plant formations of the world and historical plant geography.

BOT 470  Plant Pathology: PR: BOT 443 and MICR 200. A survey of the microorganisms causing plant diseases, emphasizing fungi, especially those forms which are important to Florida.


BOT 542  Bryology: PR: BOT 320 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 547  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.

**BOT 549**  
Plant Biosystematics: PR: BOT 345 or 547. Analysis of relationships among plants by application of cytology, population analysis and other techniques.

**BOT 671**  

### CHEMISTRY

**CHEM 101**  
Chemistry and Society: Lecture-Laboratory: Descriptive approach to the understanding of the role of chemistry in human affairs.

**CHEM 102**  

**CHEM 111**  
General Chemistry (Fundamentals): An introductory study of the fundamental concepts of chemistry, oriented toward AHS and Biology Education majors.

**CHEM 112**  
General Chemistry (Organic): PR: CHEM 111. A survey of organic chemistry stressing its applications to our society. The chemistry of functional groups will be related to industrial and natural processes.

**CHEM 113**  
General Chemistry (Biochemistry): PR: CHEM 112. A survey of the chemistry of living systems. A conceptual approach will be used in an effort to provide a rationale for the uniqueness of the chemical reactions associated with life.

**CHEM 115**  

**CHEM 251**  

**CHEM 261**  
Chemistry Fundamentals I: PR: High School Chemistry or CHEM 111. Basic physical theory of chemical reactivity, atomic structure, chemical bonding, periodicity, stoichiometry, equilibria, thermodynamics, and kinetics.

**CHEM 262**  

**CHEM 263**  

**CHEM 264**  
Chemistry Fundamentals Laboratory: PR: CHEM 111 or CHEM 261. Illustration of chemical principles and introduction to the techniques of inorganic and physical chemistry.

**CHEM 321**  

**CHEM 322**  

**CHEM 323**  

**CHEM 324**  
Organic Laboratory Techniques I: PR: CHEM 321. An introduction to the laboratory techniques of organic chemistry including the preparation, reaction, and analysis of organic compounds.

**CHEM 325**  
Organic Laboratory Techniques II: PR: CHEM 322 and CHEM 324. Open-end laboratory to develop synthesis, techniques and structure elucidation skills.

**CHEM 351**  

**CHEM 352**  
Analytical Chemistry II: PR: CHEM 351. Continuation of CHEM 351.

**CHEM 355**  
Clinical Chemistry: PR: CHEM 113 and CHEM 352. A lecture-laboratory course designed to develop a working knowledge of the analytical instrumental techniques in the modern medical laboratory.

**CHEM 361**  
Physical Chemistry I: PR: CHEM 263, PHYS 212, and MATH 322. Rigorous treatment of atomic and molecular structure, thermodynamics, kinetics, and chemical bonding.

**CHEM 362**  
Physical Chemistry II: PR: CHEM 361. Continuation of CHEM 361.

**CHEM 363**  
CHEM 364 2 (0, 6) W
Physical Chemistry Laboratory I: PR: CHEM 351 and CHEM 361. Classical as well as modern instrumental techniques coupled with computer data processing to measure physical properties and determine atomic and molecular parameters.

CHEM 365 2 (0, 6) S
Physical Chemistry Laboratory II: PR: CHEM 362 and CHEM 364. Continuation of CHEM 364.

CHEM 421 3 (3, 0)

CHEM 422 3 (3, 0)

CHEM 431 4 (4, 0) S

CHEM 441 3 (3, 0) F, W
Biochemistry I: PR: CHEM 323. A study of the composition, structure, and reactions which occur in living systems.

CHEM 442 3 (3, 0) W
Biochemistry II: PR: CHEM 441. Continuation of CHEM 441.

CHEM 443 3 (3, 0) S

CHEM 444 2 (0, 6) W
Biochemical Methods I: PR: CHEM 113 or CHEM 441, and CHEM 352. A laboratory course stressing the application of the chemical arts to the separation, identification, and quantitation of materials of biological significance.

CHEM 445 2 (0, 6) S
Biochemical Methods II: PR: CHEM 444. Continuation of CHEM 444.

CHEM 451 5 (3, 6) F
Analytical Laboratory Technique I: PR: CHEM 323, CHEM 352, and CHEM 363. A lecture-laboratory course designed to give in-depth coverage to modern methods of analysis including electrochemistry, spectroscopy, and separation techniques.

CHEM 452 4 (2, 6)
Analytical Laboratory Technique II: PR: CHEM 451. A lecture-laboratory course in which students will be encouraged to propose qualitative and quantitative methods of analysis for various inorganic and organic materials. Specific instrumental techniques will also be covered.

CHEM 461 3 (3, 0)

CHEM 471 3 (3, 0)

CHEM 474 3 (1, 6)
Radiochemical Techniques: PR: CHEM 352. A lecture-laboratory course stressing radiochemical handling techniques, radiation safety, and the detection and measurement of nuclear radiation.

CHEM 481 3 (3, 0)
Our Chemical Environment: PR: Basic ESP. An examination of the role of modern chemical technology in our society - its beneficial and detrimental effects.

CHEM 482 3 (3, 0)
The Development of Modern Chemistry: PR: Basic ESP. A look at man's changing theories of matter, energy, the universe, and himself with emphasis on the scientific accomplishments of the past two centuries.

COMPUTER SCIENCE

COMP 101 4 (4, 0) F, W, S, Su
Introduction to Computer Science: History; typical computer; elements and symbology; number systems; arithmetic operations; control and data flow; peripheral components; memory devices; case study of an application of computers.

COMP 102 3 (3, 0) F, W, S, Su
Computer Programming: PR: MATH 110 or the equivalent. Problem definitions, algorithms, flow charts, digital computer programming using a higher level language (FORTRAN).

COMP 205 4 (4, 0) F, W, S, Su
Algorithmic Processes: PR: MATH 110 or equivalent. Algorithms and computers, flow chart language, branching and subscripted variables, looping, approximations, selected projects using a suitable procedure-oriented language.

COMP 207 4 (4, 0) F, W, S
Non-numeric Processes: PR: COMP 205. Trees, compiling, text-editing, other non-numeric applications.

COMP 302 4 (4, 0) F, W, S

COMP 303 3 (3, 0) F, W, S, Su
Computer Fundamentals for Business Applications I: History of computers; processing information; manual information processing systems; introduction to electronic computer systems; storage of information; solving problems; preparation of common business reports.

COMP 304 3 (3, 0)
Computer Fundamentals for Business Applications II: PR: COMP 303 or equivalent. Introduction to business systems,
business parameters, information flow, business data processing terminology, program creation, documentation, and operations orientation.

COMP 305  Assembly Language Programming Laboratory: PR: COMP 205 or COMP 302. Computer structure and machine language; addressing techniques; digital representation of data; symbolic coding and assembly systems; selected programming techniques.


COMP 331  Introduction to Combinatorics and Graph Theory: PR: COMP 205 and a course in statistics. Recursion, permutations, combinations, generating functions, inclusion and exclusion, elements of the theory of directed and undirected graphs. Applications to computer science.

COMP 340  Data Structures and Operating Systems for Business: PR: COMP 304. Examinations of data set structures and relations to file activity. Operating system services, multiprogramming, accounting, background-foreground processing, overhead cost analysis.

COMP 387  Computer Programming With Business Applications: PR: Any COMP Course. A study of computer languages of particular use in business and applications to business activities.

COMP 401  System Design I: PR: COMP 305, EECS 311. Processor characteristics; peripheral equipment characteristics; information representation; introduction to data communications.


COMP 405  Data Structures: PR: COMP 207 and COMP 305. Basic concepts of data; linear lists, strings, arrays, and orthogonal lists; ordering or sorting techniques; recursion; string and list processing languages.

COMP 408  Programming Languages I: PR: COMP 207. Formal definitions of programming languages; global properties of algorithmic languages.

COMP 409  Programming Languages II: PR: COMP 207. List processing, string manipulation, data description, and simulation languages.

COMP 411  Operating Systems I: PR: COMP 306 and COMP 405. Task scheduling; file management; file security; multiprogramming; communication between system components, system logs, and accounting and status reporting.


COMP 421  Compiler Structure I: PR: COMP 405. Syntax analysis; bootstrapping and metacompilers; languages for compiler writing, storage allocation, mapping, dynamic allocation; scanners; symbol tables; code emitters; one-pass and multi-pass systems; code optimization.

COMP 422  Compiler Structure II: PR: COMP 421. Continuation of COMP 421.


COMP 471  Mathematical Programming I: PR: COMP 302, MATH 317 or MATH 318 or C.I. Linear, nonlinear, and dynamic programming; applications in business, science and engineering.

COMP 472  Mathematical Programming II: PR: COMP 471. Continuation of COMP 471.


COMP 481  Computer Processing of Statistical Data I: PR: COMP 102 and STAT 402 or C.I. The use of high-speed electronic computers in
statistical analysis; approximation methods; error analysis; Monte Carlo calculations; simulation; combination problems, matrix calculations; least squares analysis; multiple regression; stepwise regression; nonlinear estimation; characteristic value problems; principal component analysis, factor analysis; analysis of variance and covariance computations.

COMP 482 3 (3, 0) W
Computer Processing of Statistical Data II: PR: COMP 481. Continuation of COMP 481.

COMP 484 3 (3, 0) S
Health Information Systems: PR: COMP 303. A critical survey of the current status of health information systems, application of automated data processing techniques to the health field, and the manual systems needed to support them.

COMP 487 3 (3, 0) F
Computer Processing of Business Data I: PR: Junior standing and COMP 101 or COMP 102 or COMP 303. The use of high-speed electronic computers for business data processing; applications in accounting, payroll, inventory control, and production control; file organization, development, and control; on-line systems and controls.

COMP 488 3 (3, 0) W

COMP 489 3 (3, 0) S

COMP 501 3 (3, 0)

GEOLOGY

GEOL 100 4 (4, 0) F, W
Introductory Geology: Survey of geology including current topics such as earthquakes, drifting continents, and lunar history. Appropriate for the Environmental Studies Program.

GEOL 201 4 (2, 4) W
Physical Geology: PR: GEOL 100. Geologic principles and recent theories developed in some depth with the aid of rock and mineral samples and geologic maps.

GEOL 202 4 (2, 4) S
Historical Geology: PR: GEOL 201. Evolution of continents and of life as reconstructed from geologic evidence and fossil remains. North America emphasized, but other continents considered.

INHALATION THERAPY

IT 301 2 (0, 20) W

IT 302 2 (0, 20) S

IT 330 3 (3, 0) S

IT 331 1 (0, 2) S

IT 340 3 (3, 0) S

IT 350 3 (3, 0) F

IT 351 1 (0, 2) F

IT 352 3 (3, 0) W

IT 353 1 (0, 2) W

IT 370 3 (3, 0) W

IT 371 1 (0, 2) W
IT 380  

IT 381  

IT 401  

IT 402  
Clinical Practice IV: PR: C.I. Pulmonary functions studies. Care of patients with medically treated diseases. Exposure to the functional role of the department administrator.

IT 403  

IT 410  

IT 420  

IT 430  
Cardiopulmonary Therapy: PR: IT 370. Introduction to diagnostic and surgical techniques in thoracic and general surgery.

IT 431  

IT 440  

IT 442  

IT 460  
Medicine: PR: IT 370. Disease states treated medically in conjunction with one or more modalities of respiratory therapy.

IT 461  
Selected Topics in Inhalation Therapy: CR: IT 460. Lecture-laboratory course. Includes patient rounds and discussion regarding current trends and techniques in respiratory care.

IT 462  
Pulmonary Function Studies: PR: C.I. Detailed procedures and tests to provide objective information for diagnosis of respiratory diseases.

IT 463  

MATH 100  
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.

MATH 101  
Elementary School Mathematics I: PR: Two years of high school mathematics. Logic, sets, the system of whole numbers, numeration systems, the system of integers, the system of rational numbers. Open only to majors in elementary education.

MATH 104  
Fundamental Algebra: Elementary algebra including factoring, plane coordinates, systems of linear equations, exponents and radicals, quadratic equations and inequalities, ratio, proportion, and logarithms. For those students whose preparation in mathematics is non-current or insufficient for MATH 106, 110, 111, and 115.

MATH 106  
College Algebra: PR: MATH 104 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 MATH 110.

MATH 110  
Precalculus Mathematics I: PR: MATH 104 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.

MATH 111  
Precalculus Mathematics II: PR: MATH 110 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.
MATH 115  4 (4, 0) F, W, S
Finite Mathematics: PR: MATH 104 or one and one half years of high school algebra and one year of plane geometry or two years of high school algebra. Mathematical logic, set theory, counting and the binomial theorem, probability.

MATH 201  4 (4, 0) W
Elementary School Mathematics II: PR: MATH 101. 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.

MATH 211  3 (3, 0) F, W, S, Su
Analytic Geometry: CR: MATH 111 or equivalent. Plane and three-dimensional analytic geometry developed with the aid of vectors. Topics include coordinate systems; vectors; lines in the plane; lines and planes in space; conic sections; polar coordinates; transformation of coordinates.

MATH 271  3 (3, 0) F, W, S
Logic and Proof in Mathematics: PR: Four years of high school mathematics or equivalent. The course begins with basic mathematical logic and works up to methods of proof in mathematics using simple mathematical theorems as examples. Primarily for mathematics majors.

MATH 272  3 (3, 0) W
Mathematical Structures: CR: MATH 271. An introduction to mathematical systems: number theory, group theory, the number system.

MATH 301  4 (4, 0) S
Elementary School Mathematics III: PR: MATH 201 or C.I. Algebraic structures, selected topics from number theory, experimental and formal geometry, points, lines, planes, angles, curves, regions, parallel and intersecting lines and planes, area, congruence, measurement, and space figures. Open only to majors in elementary education.

MATH 311  4 (4, 0) F
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 MATH 320 or MATH 321.

MATH 312  4 (4, 0) W
Applied Calculus II: PR: MATH 311. Continuation of MATH 311.

MATH 314  4 (4, 0) F, S
Boolean Algebra: PR: MATH 323 or C.I. Axiomatic development of Boolean algebra; the algebras of sets, logic and circuits as Boolean algebras.

MATH 315  3 (3, 0) F
Introduction to Number Theory: PR: C.I. Divisibility; primes and composites; divisors; multiples; Euclid's algorithm; Diophantine equations; modulo arithmetic; simple continued fractions. Intended for prospective teachers of mathematics.

MATH 316  3 (3, 0) W
Introduction to Number Theory II: PR: MATH 315. Continuation of MATH 315.

MATH 317  3 (3, 0) F
Matrices: PR: MATH 323. Elementary properties of matrices; special, real and complex matrices; determinants and inverses; rank and systems of equations; transformations; eigenvectors; diagonalization; quadratic forms.

MATH 318  3 (3, 0) W

MATH 319  3 (3, 0) S
Linear Algebra II: PR: MATH 318. Continuation of MATH 318.

MATH 320  4 (4, 0) W, S
Concepts of Calculus: PR: MATH 106 or equivalent. Differential and integral calculus of exponential and polynomial functions; optimization of multivariate functions; mathematical models. Not open to students with credit in MATH 321.

MATH 321  4 (4, 0) F, W, S, Su
Calculus I: PR: MATH 110 and MATH 111 or equivalent; CR: MATH 211. The differential and integral calculus of elementary functions of one variable with attention to a variety of geometric and physical applications.

MATH 322  4 (4, 0) F, W, S, Su
Calculus II: PR: MATH 321. Continuation of MATH 321.

MATH 323  4 (4, 0) F, W, S, Su
Calculus III: PR: MATH 322. Continuation of MATH 322.

MATH 324  4 (4, 0) F, W, S
Intermediate Calculus: PR: MATH 323. Differential and integral calculus of functions of several variables with applications. Topics include vector differential calculus, partial derivatives; multiple integrals; line and surface integrals.

MATH 331  4 (4, 0) F, W, S
Differential Equations: PR: MATH 321. First order ordinary differential equations; equations with constant coefficients; the method of variation of parameters; step-by-step integration; reduction of order; Picard's method, the method of Frobenius; introduction to input-output analysis and transform methods.

MATH 341  3 (3, 0)
Vector Analysis: PR: MATH 321. Scalar and vector products; limits; derivatives and integrals of vector valued functions of real vectors; the directional derivative and vector operators; the theorems of Green, Gauss, and Stokes; generalized curvilinear coordinates; applications in engineering and physical sciences.

MATH 351  4 (4, 0) F
Foundations of Geometry: PR: C.I. Modern Euclidean geometry; logical defects in Euclid's geometry; simple axiomatic systems; introduction to finite and affine geometries. This course is intended for prospective teachers of mathematics.
MATH 411 3 (3, 0) W
Algebraic Structures I: PR: MATH 272. An introduction to the properties of groups, rings, polynomial rings, integral domains and fields.

MATH 412 3 (3, 0) S
Algebraic Structures II: PR: MATH 411. Continuation of MATH 411.

MATH 413 3 (3, 0) S
Algebraic Structures III: PR: MATH 412. Continuation of MATH 412.

MATH 414 3 (3, 0)
Semi-Groups and Groups: PR: C.I. An axiomatic development of basic properties of semi-groups and groups.

MATH 420 3 (3, 0)

MATH 421 3(3,0)F
Introduction to Analysis I: PR: MATH 272 and MATH 324. 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.

MATH 422 3 (3, 0) W
Introduction to Analysis II: PR: MATH 421. Continuation of MATH 421.

MATH 423 3 (3, 0) S
Introduction to Analysis III: PR: MATH 422. Continuation of MATH 422.

MATH 424 3 (3, 0) S
Lebesgue Theory: PR: MATH 423. Inner and outer measure; measurable sets and functions; the Lebesgue integral.

MATH 425 3 (3, 0) F
Techniques of Complex Variables: PR: MATH 321. Analytic functions; integration in the complex plane; Laurent series and residue calculus, inversion of Laplace transforms; conformal mappings; applications in engineering and the physical sciences.

MATH 426 3 (3, 0) W
Theory of Complex Variables I: PR: MATH 425. Analytic and harmonic functions; Cauchy's theorem and its implications; the maximum modulus principle; series expansions; decomposition of meromorphic functions into partial fractions; analytic continuation; asymptotic expansions; the Mittag-Leffler Theorem; integral functions of finite order; Riemann surfaces.

MATH 427 3 (3, 0) S

MATH 428 3 (3, 0)
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.

MATH 429 3 (3, 0)
Foundations of Calculus: PR: C.I. Functions; limits; continuity; differentiation and integration. This course is a study of the basic structure of the calculus and is recommended for prospective teachers of mathematics.

MATH 431 3 (3, 0)
Ordinary Differential Equations: PR: MATH 331. Systems of equations; the Wronskian; Abel's identity; integrating factors and adjoint equations.

MATH 432 3 (3, 0)

MATH 434 3 (3, 0)
Partial Differential Equations: PR: MATH 331. Separation of variables; orthogonality and Fourier series; classification of equations; solutions in different coordinate systems; methods of characteristics; the Fourier integral transform and Dirac's delta function.

MATH 435 3 (3, 0)
Boundary Value Problems: PR: MATH 434. Adjoint forms and Green's functions; applications in engineering and the physical sciences.

MATH 436 3 (3, 0)
Special Functions: PR: MATH 331. Special functions represented as series, products and integrals; generating functions and recursion formulas; orthogonal expansions and interrelations between special functions. Emphasis will be on the Bessel, Legendre, gamma and hypergeometric functions with an introduction to other polynomial sets.

MATH 437 3 (3, 0)
Laplace Transforms: PR: MATH 331. The Laplace and Z transforms; solutions of ordinary and partial differential equations; application to circuit analysis and difference equations.

MATH 438 3 (3, 0)
Transform Calculus: PR: MATH 331. Fourier, Hankel and other transforms with applications to physical problems; the transformations of distributions.

MATH 451 3 (3, 0) W
Non-Euclidean and Projective Geometry I: PR: MATH 351 or C.I. Non-Euclidean geometry; projective plane, perspectivities, projectivities; projective theory of conics; analytic projective geometry; vector theory; linear theory; linear transformations in projective geometry.
MATH 452  
Non-Euclidean and Projective Geometry II: PR: MATH 451.  
Continuation of MATH 451.

MATH 461  
Topology I: PR: MATH 272. Metric spaces; topological spaces,  
limit points, connectedness; compactness; topology of surfaces;  
spheres with handles and crosscaps; Euler characteristics; topo­  
logical invariants.

MATH 462  
Topology II: PR: MATH 461. Continuation of MATH 461.

MATH 463  

MATH 490  
History of Mathematics: PR: Five hours of mathematics. A  
chronological study of the evolution of mathematical thought  
from primitive counting through modern ideas of the twentieth  
century. Recommended for prospective teachers of mathematics.

MEDICAL RECORD ADMINISTRATION

MRA 300  
Medical Record Science I: An introduction to the field of  
Medical Record Administration with emphasis on evaluation and  
application of identification, storage and retrieval systems, preser­  
vation and retention of records.

MRA 301  
Medical Record Science II: PR: MRA 300 and MRA 305 or C.I.  
A study in depth of the medical record, its components,  
development and use, including health statistics and legal concepts  
in Medical Record Administration.

MRA 302  
Medical Record Science III: PR: MRA 301 or C.I. Principles of  
coding and indexing procedures, special registries, research and  
statistical techniques.

MRA 305  
Medical Terminology: A study of the language of medicine and  
altered health specialties, including word construction, definitions  
and application of terms.

MRA 370  
Directed Experience: PR: MRA 300. Applied experience in a  
selected health care facility. Application of the principles dis­  
cussed in MRA 300, and 301.

MRA 371  
Directed Experience: PR: MRA 370. Applied experience in a  
selected health care facility. Application of the principles dis­  
cussed in MRA 301 and 302.

MRA 404  
Medical Record Seminar: CR: MRA 421 or C.I. Discussion and  
problem-solving by use of case-method approach for the purpose  
of coordinating the students' knowledge, skills and experience in  
medical record practice.

MRA 420  
Medical Record Organization and Administration: PR: MRA  
403 or C.I. A study of the principles of control and management  
of departmental functions.

MRA 421  
Medical Record Organization and Administration: PR: MRA  
420. Continuation of MRA 420.

MRA 472  
Directed Experience: PR: MRA 371. A supervised experience in  
a selected health care facility enabling the students to handle  
problems of medical record personnel. Provides the students with  
administrative experience in the usual activities and responsibilities  
of the department.

MRA 473  
Directed Experience: PR: MRA 472. A supervised experience in  
a selected health care facility enabling the students to handle  
problems of medical record personnel. Provides the students with  
administrative experience in the usual activities and responsibilities  
of the department.

MRA 474  
Directed Experience: PR: MRA 473. Two weeks of affiliation  
(80 hours) at a selected health care facility serving in an  
administrative capacity under the direction of a qualified Medical  
Record Administrator.

MEDICAL TECHNOLOGY

MEDT 440  
Clinical Bacteriology: PR: Admission to Medical Technology  
Internship or C.I. Isolation and identification of pathogenic  
bacteria by culture and serological methods.

MEDT 442  
Clinical Chemistry: PR: Admission to Medical Technology  
Internship or C.I. Instruction and laboratory practice in clinical  
chemistry.

MEDT 443  
Clinical Blood Banking: PR: Admission to Medical Technology  
Internship or C.I. Instruction and laboratory practice in clinical  
blood banking.

MEDT 444  
Clinical Hematology: PR: Admission to Medical Technology  
Internship or C.I. Instruction and laboratory practice in clinical  
hematology.
<table>
<thead>
<tr>
<th>Course</th>
<th>Qtr. Hrs.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDT 445</td>
<td>1</td>
<td>Clinical Mycology: PR: Admission to Medical Technology Internship or C.I. Instruction and laboratory practice in the isolation and identification of fungi associated with mycotic infections of man.</td>
</tr>
<tr>
<td>MEDT 446</td>
<td>3</td>
<td>Clinical Parasitology: PR: Admission to Medical Technology Internship or C.I. Instruction and laboratory practice in the examination and study of clinical material for the detection and identification of animal parasites.</td>
</tr>
<tr>
<td>MEDT 447</td>
<td>3</td>
<td>Clinical Serology: PR: Admission to Medical Technology Internship or C.I. Instruction and laboratory practice in serological methods used in diagnosis and study of disease.</td>
</tr>
<tr>
<td>MEDT 448</td>
<td>3</td>
<td>Clinical Uralysis: PR: Admission to Medical Technology Internship or C.I. Instruction and laboratory practice in urinalysis.</td>
</tr>
<tr>
<td>MEDT 449</td>
<td>2</td>
<td>Clinical Coagulation: PR: Admission to Medical Technology Internship or C.I. Instruction and laboratory practice in coagulation.</td>
</tr>
</tbody>
</table>

### MICROBIOLOGY

<table>
<thead>
<tr>
<th>Course</th>
<th>Qtr. Hrs.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICR 200</td>
<td>4 (3, 4)</td>
<td>General Microbiology: PR: A college course in chemistry and 8 hours of biological science. Fundamentals of microbiology, microbial morphology, metabolism and laboratory techniques.</td>
</tr>
<tr>
<td>MICR 210</td>
<td>2 (1, 3)</td>
<td>Culture Media and Reagents: PR: MICR 200. Preparation of differential, selective and enrichment media; reagents used in microbiology.</td>
</tr>
<tr>
<td>MICR 320</td>
<td>4 (3, 4)</td>
<td>Pathogenic Microbiology: PR: MICR 300 or C.I. Microorganisms producing disease in man and other animals; means of transmission; protection against disease.</td>
</tr>
<tr>
<td>MICR 381</td>
<td>3 (3, 0)</td>
<td>Immunology: PR: MICR 300. Basic principles of the immune reaction; antigens, antibody formation, hypersensitivity and autoimmune.</td>
</tr>
<tr>
<td>MICR 382</td>
<td>3 (1, 6)</td>
<td>Serology: PR: MICR 381. Laboratory exercises in the production of antibodies, agglutination and precipitin reactions; quantitative techniques and isohemagglutination.</td>
</tr>
<tr>
<td>MICR 410</td>
<td>5 (2, 6)</td>
<td>Diagnostic Microbiology: PR: MICR 320. Techniques used in identifying bacteria which are pathogenic to man.</td>
</tr>
<tr>
<td>MICR 430</td>
<td>4 (3, 4)</td>
<td>Microbial Physiology: PR: MICR 300 and CHEM 442. Relationship between structure and function in microorganisms.</td>
</tr>
<tr>
<td>MICR 520</td>
<td>3 (3, 0)</td>
<td>Sanitation and Public Health Microbiology: PR: Graduate standing or C.I. Principles of sanitation and public health. Includes theories of diseases, sanitary procedures on water purification, sewage disposal, refuse collection, food processing, swimming pools and air and water contamination.</td>
</tr>
<tr>
<td>MICR 524</td>
<td>3 (3, 0)</td>
<td>Infectious Process: PR: MICR 300 and C.I. Discussion of current theories of the infectious process and the response of cells and tissue to infection.</td>
</tr>
<tr>
<td>MICR 570</td>
<td>4 (3, 4)</td>
<td>Virology: MICR 300 and CHEM 442. Nature of viruses and Rickettsiales, including their structure, propagation, isolation and identification.</td>
</tr>
<tr>
<td>MICR 581</td>
<td>4 (2, 4)</td>
<td>Applied Microbiology: PR: MICR 300 or C.I. Microbiology of consumer products; role of microorganisms in world food production and deterioration of consumer products; quality control.</td>
</tr>
<tr>
<td>MICR 633</td>
<td>5 (3, 4)</td>
<td>Microbial Metabolism: PR: C.I. Relationship between microbial metabolism and principal cellular activities, emphasizing transport, respiration, differentiation, and syntheses.</td>
</tr>
<tr>
<td>MICR 671</td>
<td>4 (4, 0)</td>
<td>Contemporary Studies in Microbiology: PR: Graduate standing. Analysis of current publications and developments in microbiology and health science.</td>
</tr>
</tbody>
</table>

### PHYSICS

<table>
<thead>
<tr>
<th>Course</th>
<th>Qtr. Hrs.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 100</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>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Days</td>
</tr>
<tr>
<td>-------------</td>
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</tr>
<tr>
<td>PHYS 103</td>
<td>4 (4, 0)</td>
<td>F, W, S</td>
</tr>
<tr>
<td>PHYS 201</td>
<td>3 (3, 0)</td>
<td>F, W</td>
</tr>
<tr>
<td>PHYS 202</td>
<td>3 (2, 2)</td>
<td>W, S</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>4 (4, 0)</td>
<td>F, W</td>
</tr>
<tr>
<td>PHYS 282</td>
<td>1 (0, 3)</td>
<td>F, W</td>
</tr>
<tr>
<td>PHYS 283</td>
<td>1 (0, 3)</td>
<td>W, S</td>
</tr>
<tr>
<td>PHYS 301</td>
<td>3 (1, 3)</td>
<td>F</td>
</tr>
<tr>
<td>PHYS 302</td>
<td>3 (1, 3)</td>
<td>W</td>
</tr>
<tr>
<td>PHYS 303</td>
<td>3 (1, 3)</td>
<td>S</td>
</tr>
<tr>
<td>PHYS 304</td>
<td>4 (4, 0)</td>
<td></td>
</tr>
<tr>
<td>PHYS 307</td>
<td>3 (3, 0)</td>
<td>F</td>
</tr>
<tr>
<td>PHYS 311</td>
<td>4 (4, 0)</td>
<td>F</td>
</tr>
<tr>
<td>PHYS 314</td>
<td>4 (4, 0)</td>
<td>F</td>
</tr>
<tr>
<td>PHYS 343</td>
<td>4 (3, 2)</td>
<td>S</td>
</tr>
<tr>
<td>PHYS 344</td>
<td>3 (3, 0)</td>
<td>W, Su</td>
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<tr>
<td>PHYS 345</td>
<td>3 (3, 1)</td>
<td></td>
</tr>
<tr>
<td>PHYS 354</td>
<td>3 (3, 0)</td>
<td>F, S</td>
</tr>
<tr>
<td>PHYS 380</td>
<td>3 (1, 3)</td>
<td>F, W, S</td>
</tr>
</tbody>
</table>
PHYS 381 4 (2, 4) F
Physics Laboratory - Electronics: PR: PHYS 212; CR: MATH 323, 324, or C.I. Lecture and laboratory work stressing electronic principles through the study of test equipment, power supplies, amplifiers, oscillators, and pulse circuits.

PHYS 382 4 (0, 6) W
Physics Laboratory - Intermediate: PR: PHYS 213 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.

PHYS 383 4 (0, 6) S
Intermediate Physics Laboratory II: PR: PHYS 382 or C.I. Continuation of physics laboratory instruction.

PHYS 401 3 (3, 0) F, S
Physical Limitations of Mankind: Physical processes of primary importance to environmental stability described for non-scientists. Explanation of physical mechanisms, limitations imposed, and requirements for survival. Satisfies science requirements of the Environmental Studies Program.

PHYS 443 3 (2, 2)
Computer Methods in Physics II: PR: PHYS 311 and COMP 102 or C.I. Examples and problems in physics from classical mechanics, electromagnetic theory and wave mechanics are solved using numerical techniques with computer assistance.

PHYS 451 3 (3, 0)
Optics: PR: MATH 331 and PHYS 312 or PHYS 354 or C.I. A study of modern approaches to refraction, interference, diffraction, polarization, scattering, absorption and stimulated emission, spectroscopy and lasers.

PHYS 461 3 (3, 0)
Solid State Physics: PR: PHYS 314 or C.I. Properties of solids, crystal binding, free electron model, band theory of solids, Fermi surface, and solid state applications.

PHYS 471 3 (3, 0)
Quantum Mechanics: PR: PHYS 314 or C.I. A study of the postulates of quantum mechanics, the Schrödinger equation, and an introduction to the statistics of many particle systems.

PHYS 477 3 (3, 0)
Nuclear Physics: PR: PHYS 314 and MATH 331 or C.I. Nuclear force, structure, moments, and models. Alpha decay, beta decay, gamma-ray emission, nuclear reactions and applications of nuclear physics.

PHYS 481 4 (0, 6)
Advanced Physics Laboratory I: PR: PHYS 382 or C.I. Advanced laboratory experiments in electronics, atomic and molecular physics, nuclear physics, optics, solid state physics, and astrophysics. Major emphasis placed on experimental design, data, and scientific writing.

PHYS 482 4 (0, 6)
Advanced Physics Laboratory II: PR: PHYS 481. Continuation of physics laboratory instruction.

SCIENCE

SCI 490 2 (2, 0)
Senior Seminar: Science in Human Affairs: The impact of science on modern society. This course, primarily intended for the senior student, is offered as one of the Advanced Environmental Studies seminars.

STATISTICS

STAT 201 4 (4, 0) F, W, S
Principles of Statistics: A course designed to introduce the student to statistical concepts in modern society. Basic principles, probability distributions, measures of location and dispersion, probability, probability distributions, statistical inference.

STAT 301 4 (4, 0) F, W, S
Fundamentals of Probability and Statistics: PR: Four years of high school mathematics or MATH 106 or MATH 110 or equivalent. Course introducing probability and statistical inference including: estimation, hypothesis testing, binomial and normal distributions, small samples, regression and correlation.

STAT 321 4 (4, 0)
Business and Economic Statistics: PR: ECON 202, ECON 203, MATH 115, and STAT 301. The use of statistical methods as scientific tools in the analysis of economic and business problems. Emphasis is placed upon the collection, analysis, and interpretation of quantitative economic and business data. (Same as ECON 321.)

STAT 332 3 (3, 0)
Statistical Quality Control: Statistical concepts and methods applied to the control of quality of manufactured products. (Same as IEMS 332.)

STAT 335 3 (3, 0)
Probability and Statistics for Engineers: PR: MATH 323. 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. (Same as ENGR 371.)

STAT 341 3 (3, 0) F, W
Mathematical Statistics I: PR: MATH 323 and a course in statistics. Sample space, probability axioms, distribution functions, sampling distributions, point and interval estimation, hypothesis testing, multivariate normal, regression and correlation, linear models, analysis of variance, distribution-free methods, an introduction to stochastic processes.
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 342</td>
<td>Mathematical Statistics II</td>
<td>PR: STAT 341. Continuation of STAT 341.</td>
<td>3 (3, 0) W, S</td>
</tr>
<tr>
<td>STAT 343</td>
<td>Mathematical Statistics III</td>
<td>PR: STAT 342. Continuation of STAT 342.</td>
<td>3 (3, 0) S</td>
</tr>
<tr>
<td>STAT 401</td>
<td>Statistical Methods I</td>
<td>PR: One course in statistics or graduate standing. A course designed to introduce the student to the role of statistics in research; methods of analyzing data from experiments and surveys; statistical concepts and models; estimation; tests of hypotheses; regression and correlation; analysis of variance and covariance; an introduction to the principles of the statistical design of experiments and surveys.</td>
<td>4 (4, 0) F</td>
</tr>
<tr>
<td>STAT 402</td>
<td>Statistical Methods II</td>
<td>PR: STAT 401. A continuation of STAT 401.</td>
<td>4 (4, 0) W</td>
</tr>
<tr>
<td>STAT 411</td>
<td>Experimental Design</td>
<td>PR: STAT 402. Methods of constructing and analyzing designs for experimental investigations; concepts of blocking, randomization, and replication; experimental unit technique; complete block designs; confounding in factorial experiments; incomplete block designs; response surface methodology.</td>
<td>3 (3, 0) S</td>
</tr>
<tr>
<td>STAT 415</td>
<td>Regression Analysis</td>
<td>PR: MATH 317 and STAT 401. Least squares techniques in multiple regression; matrix methods; general linear model; residual analysis; transformations; orthogonal polynomials; stepwise and stagewise procedures; non-linear estimation.</td>
<td>4 (4, 0) S</td>
</tr>
<tr>
<td>STAT 421</td>
<td>Survey Design</td>
<td>PR: STAT 402. Methods of constructing and analyzing designs for survey investigations; simple random, stratified, multistage, and multiphase sampling designs; questionnaire construction; methods of estimation; techniques of survey investigation.</td>
<td>3 (3, 0) W</td>
</tr>
<tr>
<td>STAT 447</td>
<td>Probability Theory and Applications I</td>
<td>PR: MATH 324. Axioms of probability, discrete and continuous random variables, characteristic functions, Markov chains, recurrent events, sequences of random variables, random walk, simple stochastic processes.</td>
<td>3 (3, 0) S</td>
</tr>
<tr>
<td>STAT 448</td>
<td>Probability Theory and Applications II</td>
<td>PR: STAT 447. Continuation of STAT 447.</td>
<td>3 (3, 0)</td>
</tr>
<tr>
<td>STAT 535</td>
<td>Probability for Engineers</td>
<td>PR: STAT 335. Engineering application of probability, combinatorial analysis, sample space, events, probability, discrete and continuous random variables, and probability distributions. (Same as IEMS 502.)</td>
<td>3 (3, 0)</td>
</tr>
<tr>
<td>STAT 536</td>
<td>Statistics for Engineers</td>
<td>PR: STAT 335. Engineering application of statistics, significance tests and confidence intervals, tests of hypotheses, simple and multiple regression and correlation. (Same as IEMS 503.)</td>
<td>3 (3, 0)</td>
</tr>
</tbody>
</table>

**ZOOLOGY**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOOL 100</td>
<td>General Zoology</td>
<td>PR: BIOL 100 or BIOL 103. Introduction to zoology; structure, function and representative groups; current concepts in zoological sciences.</td>
<td>4 (3, 3) F, W, S, Su</td>
</tr>
<tr>
<td>ZOOL 310</td>
<td>Histological Technique</td>
<td>PR: ZOOL 100 or C.I. Preparation of tissues for microscopic study; paraffin and cryostat methods; use of microtome; staining procedures; whole mounts.</td>
<td>4 (2, 6)</td>
</tr>
<tr>
<td>ZOOL 322</td>
<td>Vertebrate Histology</td>
<td>PR: ZOOL 100. Anatomy, structure and function of major cell types and tissues.</td>
<td>4 (2, 6) F</td>
</tr>
<tr>
<td>ZOOL 324</td>
<td>Comparative Vertebrate Anatomy</td>
<td>PR: ZOOL 100. The vertebrate animals; relationship of organs and systems; and their phylogenetic significance.</td>
<td>4 (2, 6) F</td>
</tr>
<tr>
<td>ZOOL 326</td>
<td>Comparative Vertebrate Anatomy</td>
<td>PR: ZOOL 326. Continuation of ZOOL 326.</td>
<td>4 (2, 6) W</td>
</tr>
<tr>
<td>ZOOL 330</td>
<td>Animal Physiology</td>
<td>PR: BIOL 332 or C.I. Function and interrelationships of nervous, endocrine, muscle, reticulo-endothelial, reproductive, excretory, respiratory and digestive systems.</td>
<td>5 (3, 6)</td>
</tr>
<tr>
<td>ZOOL 334</td>
<td>Human Physiology</td>
<td>PR: BIOL 100 or equivalent. The physiology and interrelationships of organ systems of the body.</td>
<td>3 (3, 0)</td>
</tr>
<tr>
<td>ZOOL 335</td>
<td>Human Physiology Laboratory</td>
<td>PR: BIOL 100 or equivalent. Laboratory exercises illustrating the physiological principles included in ZOOL 334. Must be taken concurrently with ZOOL 334 when required by curriculum.</td>
<td>2 (0, 6)</td>
</tr>
<tr>
<td>ZOOL 340</td>
<td>Vertebrate Zoology</td>
<td>PR: 8 hours of zoology or C.I. Emphasis on evolution and classification followed by an introduction to vertebrate ecology, natural history and behavior.</td>
<td>4 (2, 6) S</td>
</tr>
<tr>
<td>ZOOL 345</td>
<td>General Entomology</td>
<td>PR: ZOOL 100. Introduction to insects; their identification, biology and ecology.</td>
<td>4 (3, 3)</td>
</tr>
<tr>
<td>ZOOL 355</td>
<td>Game Conservation and Management</td>
<td>PR: ZOOL 100. Principles of conservation and management; habitat improvement; wildlife techniques; public relations.</td>
<td>3 (3, 0)</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Prerequisites</td>
<td>Description</td>
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<tr>
<td>ZOOL 370</td>
<td>5</td>
<td>ZOOL 100</td>
<td>Animal Parasitology: Identification and life histories of representative parasitic protozoa and helminths, emphasizing host-parasite relationships; techniques of animal examination; emphasis on human parasites.</td>
</tr>
<tr>
<td>ZOOL 375</td>
<td>3</td>
<td>ZOOL 100</td>
<td>Vertebrate Ethology: Classical ethology, modern experimental ethology and behavioral ecology are considered.</td>
</tr>
<tr>
<td>ZOOL 423</td>
<td>5</td>
<td>ZOOL 326, 327</td>
<td>Comparative Vertebrate Embryology: Embryology of the vertebrates; fertilization of egg; stages of cleavage; development of organs and systems.</td>
</tr>
<tr>
<td>ZOOL 442</td>
<td>5</td>
<td>12 hours of biology or C.I.</td>
<td>Invertebrate Zoology: Taxonomy, anatomy and ecology of the invertebrate animals.</td>
</tr>
<tr>
<td>ZOOL 445</td>
<td>4</td>
<td>8 hours of zoology or C.I.</td>
<td>Ichthyology: Introduction to the biology of the fishes, their classification, evolution and life histories.</td>
</tr>
<tr>
<td>ZOOL 447</td>
<td>4</td>
<td>8 hours of zoology or C.I.</td>
<td>Ornithology: Introduction to the biology of birds, their classification, evolution and life histories.</td>
</tr>
<tr>
<td>ZOOL 453</td>
<td>3</td>
<td>BIOL 350</td>
<td>Zoogeography: Principles and concepts concerning regional patterns of distribution of the animals of the world, both past and present.</td>
</tr>
<tr>
<td>ZOOL 473</td>
<td>4</td>
<td>ZOOL 345</td>
<td>Medical Entomology: A consideration of the recognition characteristics, biology and control of insects and other arthropods of importance to the health of man, livestock and wildlife.</td>
</tr>
<tr>
<td>ZOOL 546</td>
<td>4</td>
<td>8 hours of zoology or C.I.</td>
<td>Herpetology: Introduction to the biology of the amphibians and reptiles, their classification, evolution and life histories.</td>
</tr>
<tr>
<td>ZOOL 547</td>
<td>4</td>
<td>12 hours in biological sciences, or science teaching experience</td>
<td>Field Zoology: Classification and identification among major animal groups with emphasis on field experience. Major reference sources reviewed.</td>
</tr>
<tr>
<td>ZOOL 548</td>
<td>4</td>
<td>8 hours of zoology or C.I.</td>
<td>Mammalogy: Introduction to the biology of mammals, their classification, evolution and life histories.</td>
</tr>
<tr>
<td>ZOOL 552</td>
<td>4</td>
<td>ZOOL 450</td>
<td>Lake and Stream Management: The ecology of freshwater fishes; techniques of aquatic research.</td>
</tr>
<tr>
<td>ZOOL 576</td>
<td>5</td>
<td>ZOOL 442</td>
<td>Aquatic Invertebrates: A faunistic survey of major invertebrate group associated with aquatic environments in Florida.</td>
</tr>
<tr>
<td>ZOOL 632</td>
<td>5</td>
<td>ZOOL 330, CHEM 441</td>
<td>Comparative Animal Physiology: Structural adaptations to physiological stresses developed in exploitation of diverse habitats.</td>
</tr>
<tr>
<td>ZOOL 671</td>
<td>4</td>
<td>Graduate standing</td>
<td>Contemporary Studies in Zoology: Analysis of current publications and developments in animal science.</td>
</tr>
</tbody>
</table>
COLLEGE OF SOCIAL SCIENCES

AIR FORCE ROTC

AFR 101 1 (1, 1) F
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 102 1 (1, 1) W
Strategic Defense Forces: PR: AFR 101 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 103 1 (1, 1) S
Strategic Defense Forces: PR: AFR 102 or permission of Professor of Aerospace Studies. A brief review of Army, Navy, and Marine Forces. An introduction to special operations and countersurgency.

AFR 201 1 (1, 1) F
The Department of Defense: PR: AFR 103 or permission of Professor of Aerospace Studies. Organization of the Department of Defense and role of the military in national policies.

AFR 202 1 (1, 1) W
Military Policies and Strategies: PR: AFR 201 or permission of Professor of Aerospace Studies. Current Military strategy choices, and the military policies of the U.S., its allies and its antagonists which have resulted.

AFR 203 1 (1, 1) S
The Making of Defense Policy: PR: AFR 202 or permission of Professor of Aerospace Studies. Roles played by various U.S. governmental agencies within and without the Department of Defense in the formulation of defense policies.

AFR 301 3 (3, 1) F

AFR 302 3 (3, 1) W
Contemporary Aerospace Power: PR: AFR 301 or approval of Professor of Aerospace Studies. A study of concepts, doctrine, and the employment of aerospace power in the 1960's. The future of manned aircraft.

AFR 303 3 (3, 1) S
Astronautics and Space Operations: PR: AFR 302 or approval of Professor of Aerospace Studies. Air Force astronautics and space operations, emphasis on space vehicle systems, ground support, man in space, and future developments in space.

AFR 401 3 (3, 1) F
Leadership and Discipline in the Air Force: PR: AFR 303 or approval of Professor of Aerospace Studies. The need for Air Force leadership, professional responsibilities of the officer, need for discipline in the military, and the military justice system.

AFR 402 3 (3, 1) W
Principles of Military Leadership and Management: PR: AFR 401 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 403 3 (3, 1) S
Air Force Management and the Junior Officer: PR: AFR 402 or approval of Professor of Aerospace Studies. Pertinent Air Force publications and personnel management policies, as they affect the junior officer. Preparation of each cadet for active duty.

COMMUNICATION

COM 100 3 (3, 0) W, S, Su, F
Basic Communication: Survey of basic factors affecting human interaction through communication; theories and models of communication; contributions of the behavioral sciences and related arts; mass media in society.

COM 301 4 (4, 0) W, S, Su, F
Communication as a Behavioral Science: Basic principles of the behavioral science approach to the study of contemporary communication.

COM 310 4 (4, 0)
History of the Motion Picture: Development of the film industry, its social and economic impact. Same as THA 310.

COM 311 4 (4, 0) W, S, Su, F
Business and Professional Communication: Investigation of the basic principles of communication as applied to business with emphasis on the written and oral communicative acts.

COM 312 4 (4, 0) S, F
Leadership Through Oral Communication: A theoretical and practical investigation of leadership in oral communication situations, principles of parliamentary law, and approaches to problem solving.

COM 313 4 (4, 0) W
Interpersonal Communication: Nature of the communication process; variables affecting the process and the individuals involved. Analysis of communication models, sender-receiver behavior, situational cues, verbal and nonverbal messages.

COM 319 5 (2, 3) W, F
Basic Reporting: PR: C.I. and student must have a minimum ability to type. Development of skills in gathering and writing for the mass media.
COM 320  
Introduction to Communicative Disorders: Etiology, symptoms, and methods of diagnosing and treating communicative disorders. For beginning and prospective majors in Communicative Disorders.

COM 321  

COM 350  
Oral Communication For Television: PR: SPE 101. Practice and performance in speech preparation and delivery for television. Types of speeches include the television demonstrative, television stimulative and the television persuasive. All speeches are televised in the television laboratory.

COM 363  
Group Interaction and Decision-Making: A study of small-group interaction employing both general communication theory and small group theory. Attention is given to such group activities as development of discussion, leadership emergence, development of norms, etc.

COM 377  
Differential Diagnosis in Communication Disorders: PR: SPE 261, 364; COM 320, 321. Lectures, readings, observations and participation in the evaluative procedures concerned with speech and language skills of the handicapped.

COM 400  
Opinion and the Mass Media: Role of the mass media in influencing public opinion, with specific case studies. Also the techniques of opinion measurement and impact of opinion polls on voters.

COM 401  

COM 402  

COM 403  

COM 404  

COM 405  

COM 406  
Basic Instrumentation for Communicative Disorders: PR: C.I. Calibration and instrumentation for communicative sciences. Basics of circuitry as well as operation and minor repairs of audiological and speech pathology.

COM 410  
Social Responsibilities of the Mass Media: Relationships between the mass media and society; examination of social and ethical responsibilities of the media.

COM 411  
Legal Responsibilities of the Mass Media: Legal rights and restrictions, including Constitutional guarantees, libel, invasion of privacy, and contempt of court.

COM 414  
Mass Communication and Government: Role, responsibilities, and non-legal problems of both the government and press in the process of conveying governmental news to the public.

COM 415  
Informational Communication: An examination of available communication systems (non-technical) and their utilization within business, educational, entertainment, industrial, medical, and military organization.

COM 420  
Practicum in Communication: PR: C.I. May be repeated three times for credit.

COM 421  
Current Affairs Analysis: An analytical approach to the handling of the major news events through mass communications, with emphasis on their social, economic, political, cultural and historical impact.

COM 426  
Public Relations: Principles and practice of public relations, the means of gaining publicity and influencing people.

COM 427  
Public Relations Campaigns: PR: COM 426. Planning and execution of a public relations campaign; use of research and coordination of elements of the campaign.

COM 428  
Institutional Public Relations: PR: COM 426 or C.I. Principles and methods of public relations as practiced by educational, medical and corporate related institutions.

COM 429  
Mass Media and Popular Culture: An impact study of mass media upon American culture past to present.

COM 432  
The Mass Media in Developing Countries: Role of media in the world's developing areas; how the nations and media help shape
COM 434 4 (4, 0) F
Principles of Advertising: Fundamentals of advertising theory and practice, including social and economic aspects.

COM 435 4 (4, 0) W
Advertising Media: PR: COM 434 or C.I. Evaluations of advertising media, their ability to serve the advertiser's communication needs and analysis used in determining media success.

COM 440 1-12 (0, 1-12) F, W, S, Su
Clinical Observation and Practice: PR: C.I. Observation and supervised participation in speech pathology and audiology in the university clinic and local clinics.

COM 444 4 (4, 0)
Speech Science: PR: C.I. A comprehensive study of the physics of sound as related to the vocal mechanism including the use of instrumentation in voice analysis.

COM 445 4 (4, 2) S

COM 450 4 (4, 0)

COM 451 5 (5, 0)

COM 457 12-15 (0, 12-15)
Communication Internship: PR: C.I. Internship in radio, television, film, journalism, public relations, advertising and speech involving practicum at selected professional communications organizations for one quarter. In addition to a regular prescribed work schedule, the intern must submit a weekly log of his activities and produce a significant research paper.

COM 460 4 (4, 0)
Group Dynamics: A study of human behavior in group situations.

COM 463 4 (4, 0) W
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.

COM 501 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.

COM 507 4 (4, 0)
Freelance Writing: PR: Evidence of satisfactory writing skills. A study of the techniques and procedures of freelance writing, including the preparation of several manuscripts.

COM 510 4 (4, 0)
Survey of Communicative Disorders: A survey of speech, language and hearing disorders for habilitative personnel and other interested professionals not directly working or majoring in the area of communicative disorders.

COM 511 5 (5, 0)
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.

COM 512 4 (4, 0) W
Audiology: PR: C.I. Advanced techniques in pure-tone, speech, and automatic audiometry, with emphasis on interpretation of audiograms and differential diagnosis. Practice required.

COM 513 4 (4, 0)
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.

COM 514 4 (4, 0)
Hearing Conservation: PR: C.I. Information regarding the prevention of hearing loss and the establishment of hearing conservation programs.

COM 520 4 (4, 2) S

COM 562 4 (4, 0) S
Persuasion: Attitude Formation and Change: A survey of the immediate and direct ways in which persuasive communications and social groups come to influence attitudes.

COM 568 5 (4, 0) W
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.

COM 572 4 (4, 0)
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 social and political dissent.

COM 602 4 (4, 0) F
Modern Communication Theory: Comparative analysis of theories and models of human communication: behavior systems, encoding and decoding processes, interaction variables, and social context.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 603</td>
<td>4 (4, 0) W</td>
<td>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.</td>
</tr>
<tr>
<td>COM 605</td>
<td>1-15 (0, 0-15)</td>
<td>Clinical Practice in Language and Speech Pathology: PR: COM 405 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.</td>
</tr>
<tr>
<td>COM 610</td>
<td>4 (4, 0)</td>
<td>Communication and National Development: An examination of the mean by which communication has been used to aid in modernizing developing societies.</td>
</tr>
<tr>
<td>COM 612</td>
<td>4 (4, 0) W</td>
<td>Comparative International Communication Organizations: A study of the principle mass communication organizations of the world.</td>
</tr>
<tr>
<td>COM 613</td>
<td>4 (4, 0)</td>
<td>Communication and Society: The importance of communications in societal stress situations, with emphasis on current problems.</td>
</tr>
<tr>
<td>COM 617</td>
<td>4 (4, 0)</td>
<td>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.</td>
</tr>
<tr>
<td>COM 620</td>
<td>4 (4, 0)</td>
<td>Studies in Persuasion: Survey and evaluation of experimental research in persuasion.</td>
</tr>
<tr>
<td>COM 621</td>
<td>4 (4, 0)</td>
<td>Persuasion in the Media: Study of persuasive campaign with focus upon ethics, methodology, and strategies toward accomplishing the communication end.</td>
</tr>
<tr>
<td>COM 628</td>
<td>4 (4, 0)</td>
<td>Audience Measurement: PR: C.I. Examination and review of audience measurement techniques. Individual assignments for compilation and analysis of measurement data.</td>
</tr>
<tr>
<td>COM 635</td>
<td>4 (4, 0) W</td>
<td>Legal Aspects of Mass Communication Law: PR: C.I. Further study into the legal rights and restrictions affecting the mass media.</td>
</tr>
<tr>
<td>COM 636</td>
<td>4 (4, 0)</td>
<td>Management of Communicative Disorders Programs: PR: C.I. Techniques for establishing and conducting a program in communicative disorders, including patient handling, equipment needs, fund raising, and public relations.</td>
</tr>
<tr>
<td>COM 640</td>
<td>4 (4, 0) W</td>
<td>Effects of Advertising on Society: An in-depth study of advertising's effects on consumer behavior, societal mores and media economics.</td>
</tr>
<tr>
<td>COM 645</td>
<td>3 (3, 0)</td>
<td>Speech of the Laryngectomee: PR: C.I. Basic principles and practice for developing and improving the speech of the laryngectomee.</td>
</tr>
<tr>
<td>COM 646</td>
<td>4 (4, 0)</td>
<td>Aphasia: PR: C.I. Etiology, diagnostic techniques and management of the adult aphasic patient.</td>
</tr>
<tr>
<td>COM 647</td>
<td>4 (4, 0)</td>
<td>Auditory Amplification: Physical characteristics and clinical aspects of auditory amplifiers for the hearing handicapped. Clinical observations required.</td>
</tr>
<tr>
<td>COM 648</td>
<td>4 (4, 0)</td>
<td>Electrophysiological Audiometry: PR: C.I. An investigation into the use of electro-dermal, electro-encephalography, electro-cardiography, electronystagmography, and other such systems employed in the detection of hearing impairment.</td>
</tr>
<tr>
<td>COM 650</td>
<td>4 (4, 0)</td>
<td>Otological Relationships to Audiology: PR: C.I. Medical aspects and their relations to auditory assessment of hearing. Etiologies of auditory anomalies are reviewed relative to surgical, medical and rehabilitative correction.</td>
</tr>
<tr>
<td>COM 661</td>
<td>4 (4, 0)</td>
<td>Advanced Studies in Communicative Disorders: Language: Specific diagnostic techniques and therapeutic procedures for language disorders.</td>
</tr>
</tbody>
</table>
COM 662 4 (4, 0)  
Advanced Studies in Communicative Disorders: Cleft Palate and Other Oral Abnormalities: Specific diagnostic techniques and therapeutic procedures for cleft palate and other oral abnormalities.

COM 663 4 (4, 0)  
Advanced Studies in Communicative Disorders: Neurological Disorders: Specific diagnostic techniques and therapeutic procedures for neurological disorders.

COM 664 4 (4, 0)  
Advanced Studies in Communicative Disorders: Voice: Specific diagnostic techniques and therapeutic procedures for voice disorders.

COM 665 4 (4, 0)  
Advanced Studies in Communicative Disorders: Stuttering: Specific diagnostic techniques and therapeutic procedures for stuttering.

COM 666 4 (4, 0)  
Advanced Studies in Communicative Disorders: Dialect: Specific diagnostic techniques and therapeutic procedures for dialect.

COM 667 4 (4, 0)  
Advanced Studies in Communicative Disorders: Orthography: The relationship between written and spoken language: disturbances of inner language arising from incompatibility and of the interfacing between written and spoken language.

COM 668 4 (4, 0)  

CRIMINAL JUSTICE

CRJ 201 4 (4, 0) S, Su, F  
Law Enforcement: A comprehensive survey of the history and philosophy of law enforcement. The role of the police as a functional component in the broad system of criminal justice will be emphasized.

CRJ 205 4 (4, 0)  
Police Science and Technology: PR: CRJ 201. Study of operational concepts of investigative and scientific professions as affecting discovery, preservation, and examination of physical tracings from negligent or criminal events. The specific advantages and limitations of scientific interpretations.

CRJ 207 4 (4, 0)  
Criminal Investigation: A comprehensive survey of the modern methods and procedures used in the investigation and solution of criminal offenses.

CRJ 300 4 (4, 0) Su, F  
Crime in America: Social factors and processes in criminal and delinquent behavior. Perspectives on criminal behavior and its varied patterns. Socialized criminals, the sociopathic offender, organized crime, white-collar crime, drug use and abuse, the sexual offender, and protest, politics and crime.

CRJ 301 4 (4, 0) S, F  
Criminal Law in Action: PR: C.I. Basic concepts of the criminal law, their origin and development in Anglo-American jurisdiction; constitutional and procedural restraints on law enforcement, their purpose and implementation; modern criminal procedures; Federal and State relationships in the administration of justice.

CRJ 302 4 (4, 0) W, S, F  
Administration of Justice: The broad system of criminal justice process in America, an examination of various goals and conflicts present within law enforcement, court and corrections subsystems.

CRJ 303 4 (4, 0) W  
Municipal Police Administration: PR: CRJ 201. Advanced study of contemporary operational concepts of administration with an emphasis on function, rather than structure. An examination of emerging ideas such as lateral entry, team policing, central staff control, and professionalization.

CRJ 304 4 (4, 0) F  
The Police Managers: PR: CRJ 201. Elements of first-line supervision and executive development. Administrative leadership: its situational nature; methods and traits; recent theories and research on leadership.

CRJ 310 4 (4, 0) W, S, F  
The Correctional and Penal Systems: Organization and function of institutions and non-institutional services in the correctional rehabilitation of criminal and juvenile offenders, contemporary philosophies and methods in the treatment of adult criminals and juvenile delinquents.

CRJ 311 4 (4, 0) F  
Probation and Parole: Analysis of probation and parole services and systems: the organization, administration and management of treatment and field services for various types of public offenders.

CRJ 400 4 (4, 0) F  
Police and the Community: Police relationships with the citizenry. Ethnic tension and conflict in relation to law enforcement. The police role in dealing with groups, crowds, gangs and nonconformist cultures.

CRJ 407 4 (4, 0) W  
Comparative Justice Systems: A survey of contemporary foreign law enforcement systems, operational and philosophical differences emerging from various cultural and legal systems in Europe and Asia.

CRJ 410 4 (4, 0) S  
Financial Administration and Budgeting: PR: CRJ 303 or CRJ 304. Police budgets as instruments of policy making and management. Financial, fiscal, administrative and legal aspects of budgeting.
CRJ 411  4 (4, 0) Su
Justice Policy and Social Conflict: Social conflict and contemporary justice policy, the effect of differential policy and decision-making upon the administration of law enforcement bureaucracies and justice service agencies.

CRJ 422  4 (4, 0) W
Delinquency Control: Examination of operational programs and institutions including juvenile court process, intake services, juvenile bureau administration youth authority programs, and drug abuse control.

CRJ 423  4 (4, 0) S
Corrections Administration: Organization and operation of short and long term detention facilities or institutions including classification, treatment, security, supervision and prison sub-culture problems.

ECONOMICS
(See page 182)

JOURNALISM

JRN 321  4 (2, 2) W, F
Copy Editing: PR: COM 319. Fundamentals of copy editing for printed media, including selection, processing and display of news.

JRN 322  4 (4, 0) S
Information Processing: PR: JRN 321 or equivalent. Planning content and format of newspaper and other periodicals; layout; dummying, departmental editing, copy desk management.

JRN 323  4 (4, 0)
Press Photography I: Learning the use of the still camera, darkroom procedures, role of the photographer.

JRN 324  4 (4, 0)
Press Photography II: PR: JRN 323 or equivalent. Further study in the use of the still camera and darkroom procedures plus color photography.

JRN 330  4 (4, 0) W
History of American Journalism: Development of newspapers and magazines, the press associations and the growth of the electronic media.

JRN 331  3 (3, 0)
Film Criticism: PR: C.I. The practice of writing movie reviews: students will review at least one film a week during the course.

JRN 420  4 (4, 0)
Technical and Scientific Writing: PR: C.I. The practice in the gathering of materials for technical and scientific articles; digesting of technical information into more readable forms.

JRN 421  4 (4, 0)
Editorial and Column Writing: PR: C.I. Building the editorial page, backgrounding and interpreting the news.

JRN 422  4 (4, 0)

JRN 423  4 (4, 0)
Writing for the Mass Media: PR: C.I. Students write for a certain segment of the mass media of their own choosing. Will include creative writing, article writing, etc. May be repeated for credit.

JRN 424  4 (4, 0)
Critical Writing: PR: C.I. Practice in writing reviews of plays, concerts, and books.

JRN 425  4 (4, 0) S
Feature Writing: PR: C.I. Writing of feature articles for newspapers and magazines.

JRN 426  4 (4, 0)
Political Cartooning I: PR: Evidence of drawing ability. The history and technique of the political cartoon plus marketing and syndication considerations.

JRN 427  4 (4, 0)
Political Cartooning II: PR: JRN 426 or C.I. Further study into the technique of political cartooning.

JRN 430  4 (4, 0)
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.

JRN 431  4 (4, 0) S
International Communication and the Foreign Press: A study of the news communicating systems of the world, the role of foreign correspondents, the foreign press.

JRN 433  4 (4, 0) W, Su
Propaganda and Psychological Warfare: Propaganda and psychological warfare principles with a study of the activities engaged in by nations.

JRN 436  4 (2, 2) S
Advertising Copy: PR: COM 434. The writing and preparation of advertising copy.

JRN 437  4 (2, 2) S
Advertising Campaigns: PR: JRN 436 or C.I. The planning and execution of an advertising campaign; use of research and coordination of elements of the campaign.

JRN 438  4 (2, 2) S
Newspaper and Magazine Advertising: PR: C.I. A study of the mechanical requirements and limitations in print advertising.

GEOGRAPHY, SOCIAL

GEOG 350  4 (4, 0)
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.

GEOG 360 4 (4, 0)
World Political Geography: Analysis of the types and distributions of political systems, review of factors which affect relative power of diverse politics, areas of conflict and arbitration.

POLITICAL SCIENCE

PCL 201 4 (4, 0) W, S, Su, F
American National Government: A study of the dynamics of American national government, including its structure, organization, powers, and procedures.

PCL 300 4 (4, 0) W
State Government: PR: PCL 201, PCL 203 or C.I. A comparative study of American state governments and political processes with emphasis on Florida. Structures and functions of state governments will be considered as well as federal-state and state-local relations.

PCL 302 4 (4, 0) W, S, Su, F
Scope and Methods of Political Science: Introduction to the Scope and Methodology of contemporary political analysis. Topics include scope of the discipline, research design, and methods.

PCL 303 4 (4, 0) W, S, Su, F
Principles of Political Science: Basic concepts of political science and its development as a field with emphasis on areas of concern; analysis of major approaches to the study of politics; familiarization with recent developments in the discipline.

PCL 305 4 (4, 0) W, F
Political Parties and Processes: PR: PCL 201 and PCL 303, or C.I. Study of American politics with major emphasis upon the role, organization, functions, and future processes of parties in the American political system.

PCL 306 4 (4, 0) W
Interest Groups and Political Movements: PR: PCL 201 or C.I. A study of the role of interest groups in the American political process and a comparison of varying political objectives and strategies used by the groups.

PCL 308 4 (4, 0) F
The American Presidency: PR: PCL 201 and PCL 303 or C.I. Examination of the presidency as an institution and of the evolution in status, powers, administrative responsibilities, leadership and decision-making roles of the chief executive in the American political system.

PCL 310 4 (4, 0) W
Congress and the Legislative Process: PR: PCL 201 and PCL 303 or C.I. The nature, role, and functions of the legislative process; the dynamics of executive-legislative relations and resultant problems.

PCL 312 4 (4, 0) Su
Minorities in American Politics: PR: PCL 201 and PCL 303 or C.I. The past and contemporary roles of minority groups in the American political system; their impact upon the legislative, executive, and judicial processes.

PCL 315 4(4, 0) F
Public Opinion: A substantive and theoretical study of public opinion: patterns of distribution, opinion formation, opinion measurement, policy linkages.

PCL 316 4 (4, 0) W
Electoral Behavior: Theoretical and substantive inquiry into U.S. electoral behavior: a study of the factors influencing participation and voting behavior.

PCL 321 4 (4, 0) S, F
International Relations: PR: PCL 201 and PCL 303 or C.I. Analysis of the fundamental principles and factors affecting interstate relations; the foreign policy decision-making processes of states; the role and problems of power; conflict and methods of resolution.

PCL 323 4 (4, 0) W, Su
Comparative European Politics: PR: PCL 201 and PCL 303 or C.I. An analytical and comparative study of the major governments of Europe and their impact upon the development of types of political systems.

PCL 341 4 (4, 0) W, S, Su, F,
Comparative European Politics: PR: PCL 201 and PCL 303 or C.I. An analytical and comparative study of the major governments of Europe and their impact upon the development of types of political systems.

PCL 342 4 (4, 0) F
Nationalism: A Systematic Analysis: Theories of modern nationalism as a world-wide political phenomenon including problems of: nationalistic wars and rebellions, multi-nation states, trans-national organizations.

PCL 343 4 (4, 0) W
Politics of Developing Areas: PR: PCL 201 and PCL 303 or C.I. An analysis of non-Western political systems with emphasis upon the problems of political, socio-economic, and cultural development as they affect attempts to achieve the transformation to modernization.

PCL 344 4 (4, 0)
Comparative Asian Politics: PR: PCL 201 and PCL 303 or C.I. Selected Asian political systems will be examined in terms of the interaction between political institutions and processes and social, cultural and economic structures.

PCL 348 4 (4, 0) W, F
Politics of Mexico, Central America, and the Caribbean: Survey of politics and governments of the area. Influence of cultural, social and economic factors in each country's political development are considered.
PCL 349 4 (4, 0) S
Politics of South America: PR: PCL 348 or C.I. Survey of politics and governments of the continent with emphasis on Argentina, Brazil, and Chile. General conclusions about Latin American politics will be drawn.

PCL 350 4 (4, 0) W, F
Introduction to Public Administration: PR: PCL 201 and PCL 303 or C.I. Analysis of administrative theories and the process of implementing public policies in a democratic society.

PCL 360 4 (4, 0)
American Political Philosophy: PR: PCL 201 and PCL 303 or C.I. A survey of the chief contributions of American political thought, their sources and background as focused within the context of American historical and institutional development.

PCL 403 4 (4, 0)
Political Behavior: PR: PCL 201 and PCL 303 or C.I. A substantive and theoretical study of individual and group political behavior in the American political system.

PCL 405 4 (4, 0) F
Political Theory: PR: PCL 201 and PCL 303 or C.I. Examination of various normative and empirical approaches to the study of political science, stressing contemporary developments in the field.

PCL 406 4 (4, 0)
Contemporary Democratic Theory: Study of democratic theories emphasizing elitist theories, participatory democracy, citizen participation and the relevance of empirical research to democratic theory.

PCL 411 4 (4, 0)
Public Policy Administration: Problem of values, interests, and objectives and their impact on execution of public programs, stressing the relationship between policies and administration.

PCL 413 4 (4, 0) S
Metropolitan Politics: PR: PCL 203 and PCL 303 or C.I. Analysis of political patterns, processes and issues in American communities.

PCL 414 4 (4, 0) W, Su
Metropolitan Administration I: PR: PCL 350 or PCL 413 or C.I. Study of the formal and informal socio-political structures that govern urban areas; emerging patterns of government, and management practices in urban and suburban settings.

PCL 416 12-15 (0, 12-15) W, S, Su, F
Public Administration Internship: PR: C.I. Internship in municipal, county, state or federal government, including generalistic assignments or concentrations in such fields as personnel, planning, budget and fiscal, procurement, public safety, or housing and urban development for one quarter.

PCL 417 4 (4, 0) W
Policy Problems of Metropolitan Areas: PR: 4 hours of political science or C.I. A course designed to provide an in-depth analysis of two or three basic policy areas; for example, transportation, education, welfare, crime, etc.

PCL 418 4 (4, 0) F
The Politics of Planning for Urban Communities: PR: PCL 413 or C.I. An examination of social, political, and economic factors influencing the urban planning process at local, state, and national levels.

PCL 420 4 (4, 0) F
Contemporary International Politics of Asia: Examination of the role of Asia in international politics and the foreign policies of major and secondary powers as they relate to trends in Asia.

PCL 421 4 (4, 0) F
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.

PCL 422 4 (4, 0)
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.

PCL 425 4 (4, 0)
Political Party Behavior: In depth analysis of selected topics in political party behavior including: changes in Southern politics; urban parties in transition; political campaigns; the changing electorate.

PCL 427 4 (4, 0)
American Foreign Policy: PR: PCL 201 and PCL 303 or C.I. An analysis of the traditions and development of American foreign policy with major emphasis on the role and policies of the United States in the contemporary world.

PCL 428 4 (4, 0) W
American Defense Policy: Study of policy evolution since World War II including consideration of the social and political costs involved and means of control.

PCL 430 4 (4, 0) S
International Organizations: PR: PCL 201 and PCL 303 or C.I. The nature and growth of international agencies of cooperation. Attention focused on the problems and development of functional, regional, and universal organizations.

PCL 433 4 (4, 0) S, Su
International Law: PR: PCL 201 and PCL 303 or C.I. An introduction to the nature of evolution, and sources of international law and its role in interstate relations.

PCL 435 4 (4, 0) W
Coercion in International Politics: PR: PCL 201 and PCL 303 or C.I. An inclusive examination of the role and utility of coercive techniques of interaction among states in a nuclear age ranging from low-tension producing techniques of diplomatic intervention through theories of nuclear strategy and deterrence.

PCL 440 4 (4, 0)
Comparative Public Administration I: PR: PCL 303, 203 203 and PCL 303 or C.I. An analysis of administrative structures and processes of selected countries, including an evaluation of the
influence of economic, social and political environment on bureaucratic functions and the role of the executive.

PCL 441
Comparative Public Administration II: PR: PCL 201 and PCL 303 or C.I. A case study approach to the problems of administration in diverse political environments stressing such functional aspects of bureaucratic and administrative behavior and process as patterns of organization, personnel systems, field services, administrative style and the political power position of the bureaucracy.

PCL 442
Government and Politics of Great Britain: PR: PCL 341 or C.I. A survey of British government, society, and institutions, with emphasis on the growth and development of parliamentary democracy.

PCL 443
Government and Politics of the Soviet Union: PR: PCL 341 or C.I. 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.

PCL 444
Government and Politics of China: Examination of the origins, institutions, and functioning of the Chinese political system, including the role and characteristics of the communist party of China.

PCL 447
Comparative Political Culture and Socialization: PR: PCL 201 and PCL 303 or C.I. Comparative analysis of the quality and function of political cultures and of recruitment and socialization processes. Analysis and comparison of developed and developing political systems.

PCL 450
American Public Policy: PR: PCL 201 and PCL 303 or C.I. The American policy-making process with a focus upon contemporary problems including the political impact of the "New Economics," government and business relations, wealth and income inequality, the malapportionment of societal power and social conflict.

PCL 461
Political Philosophy I: PR: PCL 201 and PCL 303 or C.I. Study of the development of political and social ideas in Western thought from early Greece to the Renaissance.

PCL 462
Political Philosophy II: PR: PCL 201 and PCL 303 or C.I. Renaissance to the 19th Century.

PCL 463
Political Philosophy III: PR: PCL 201 and PCL 303 or C.I. Study of contemporary Western political and social thought in the 19th and 20th Centuries.

PCL 471
American Constitutional Law: PR: PCL 201 and PCL 303 or C.I. The impact of judicial decision-making upon the growth of American political institutions and processes.

PCL 473
American Constitutional Law: PR: PCL 201 and PCL 303 or C.I. The role of the judiciary in the focusing and refinement of individual rights and civil liberties in American society.

PCL 475
Judicial Behavior: Study of Judicial Behavior emphasizing the role of courts as a bureaucratic structure. Consideration will be given to comparative judicial systems.

PSYCHOLOGY

PSY 201
General Psychology: The basic principles, theories, and methods of contemporary psychology.

PSY 202
General Psychology: PR: PSY 201. A continuation of PSY 201.

PSY 300
Applied Psychology: Applications of principles of psychology to personal adjustment, industry, and education.

PSY 301

PSY 302

PSY 303
Physiological Psychology: PR PSY 201 and PSY 202. Physiological bases of behavior.

PSY 304

PSY 305

PSY 306
Psychology of Adjustment: Psychological principles of adjustment; application of psychology to problems in living.

PSY 307

PSY 308
PSY 309  

PSY 310  

PSY 312  

PSY 313  

PSY 314  
Industrial Psychology: PR: PSY 201, PSY 202, and STAT 201. Psychological principles of employee selection, training, and morale.

PSY 315  
Drugs and Behavior: PR: PSY 201. Effects of certain drugs upon the nervous system, behavior, and society. Causes of drug abuse and the impact on mental health.

PSY 321  
Principles of Behavior Modification: PR: PSY 301. 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.

PSY 322  
Clinical Psychology Research Practicum: PR: PSY 301, PSY 310, and PSY 311. Research and practicum experience in mental health related facilities located in the immediately surrounding area.

PSY 323  
Comparative Psychology: PR: PSY 201 and PSY 202. A study of comparative behaviors of lower animals.

PSY 333  
Development of Language and Conceptual Behavior: PR: PSY 301. Normal ontogeny of language and conceptual behavior from infancy to adulthood; disorders of linguistic and conceptual development and their remediation; key theoretical interpretations.

PSY 340  
Environmental Psychology: PR: PSY 201, PSY 202, and STAT 201. An investigation of theory and research relevant to the relationship between the physical environment and the behavior of man.

PSY 343  
Educational Psychology: PR: PSY 201 and PSY 202. Application of psychological principles and research methods to classroom behavior and learning.

PSY 390  
Undergraduate Field Work: Placement in a community agency for supervised experience in applications of psychology to community problems.

PSY 401  
Senior Research Proposal: PR: STAT 401 and Senior standing. Study in depth of bibliography and methods of psychological research. Each student will write, and have approved, a proposal for an original piece of research.

PSY 403  

PSY 405  
History and Systems of Psychology: PR: PSY 301 and PSY 309. Historical development of psychology with emphasis on classical theoretical positions.

PSY 408  
Experimental Social Psychology: PR: PSY 201, PSY 202, and STAT 201. Study of experimental investigations of the social behavior of animal and man.

PSY 411  
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.

PSY 415  

PSY 606  
Psychological Testing II: PR: Graduate admission and C.I. An examination of the most commonly used instruments in psychological testing and a critical evaluation of their potential utility.

PSY 610  
Psychology of Individual Differences: PR: Graduate admission and C.I. A survey of the problems of measurement and areas of difference between individuals.

PSY 615  
Counseling Practicum: PR: Graduate admission and C.I. Application of counseling techniques in a supervised setting.

PSY 620  
Information Processing and Decision-Making: PR: Graduate admission and C.I. Application of statistical principles and decision theories to the decision-making process. Application of computers to managerial decisions.

PSY 640  
Consumer Psychology: PR: Graduate admission and C.I. Application of psychology to consumer behavior. Survey of research in product selection, markets, and advertising.
PSY 641 4 (4, 0) F
Organizational Psychology: PR: Graduate admission and C.I. Survey of present theories in Organizational Psychology. Application of psychological research to organizational functioning.

PSY 650 4 (4, 0) F

PSY 651 4 (4, 0) W

PSY 660 3 (0, 3) W, S, Su, F
Industrial Psychology Practicum I: PR: Graduate admission and C.I. Supervised research in industry.

PSY 661 3 (0, 3) W, S, Su, F
Industrial Psychology Practicum II: PR: Graduate admission and C.I. Supervised research in industry.

PSY 662 3 (0, 3) W, S, Su, F
Industrial Psychology Practicum III: PR: Graduate admission and C.I. Supervised research in industry.

PSY 664 3 (0, 3) S
Community Psychology Practicum I: PR: Graduate admission and C.I. Supervised experience in a community agency.

PSY 665 3 (0, 3) F
Community Psychology Practicum II: PR: PSY 664. Continuation of 664.

PSY 666 3 (0, 3) F

PSY 667 3 (3, 0)
Problems in Correctional Psychology: PR: Graduate admission and C.I. An investigation of some of the major problems facing psychologists working in correctional settings. May be repeated for credit.

PSY 668 3 (3, 0)
Problems in Mental Health: PR: Graduate admission and C.I. An investigation of some of the major problems facing psychologists working in Mental Health clinics. May be repeated for credit.

PSY 669 3 (3, 0)
Problems in School Psychology: PR: Graduate admission and C.I. An investigation of some of the major problems facing psychologists working in school systems. May be repeated for credit.

PSY 670 3 (3, 0) W
Teaching and Training Evaluation: PR: Graduate admission and C.I. Evaluation of effective teaching methods and practicum experience.

PSY 671 4 (4, 0) W
Individual Testing: PR: Graduate admission, PSY 683 and C.I. A survey of individual tests commonly used to measure personality and intelligence of both children and adults.

PSY 672 4 (4, 0) S
Group Testing: PR: Graduate admission, PSY 683 and C.I. A survey of group tests commonly used to measure personality, achievement, and perceptual-motor skills in both children and adults.

PSY 673 4 (4, 0) F
Mental Retardation: PR: Graduate admission, PSY 683, PSY 684, and C.I. Theory, research and remedial techniques dealing with mental retardation.

PSY 675 4 (4, 0) W
Implementation and Evaluation: PR: Graduate admission and C.I. Practical problems of consultation with teachers, parents, community mental agencies, etc. Role of the psychologist in solution of social problems and evaluation of programs.

PSY 676 4 (4, 0) W
Clinical Psychophysiology: PR: Graduate admission, PSY 673 and C.I. Physiological and clinical effects of various psychotomimetic and psychoactive drugs. Current techniques in diagnosing brain damage.

PSY 677 4 (4, 0) W
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.

PSY 678 4 (4, 0) W
Classification of Behavior Disorders: PR: Graduate admission and C.I. Common diagnostic means of classifying behavior plus factor analytic studies of behavior classification.

PSY 683 4 (4, 0) F
Foundations of Psychology I: PR: Graduate admission and C.I. An intensive survey in the areas of testing, learning, and motivation stressing recent research.

PSY 684 4 (4, 0) W
Foundations of Psychology II: PR: Graduate admission and C.I. An intensive survey in the areas of developmental, personality, and social psychology stressing recent research.

PSY 686 4 (4, 0) F
Clinical Intervention I: PR: Graduate admission and C.I. Various theories of counseling and their evaluated efficiency, including the problems of research in counseling techniques.

PSY 687 4 (4, 0) W
Clinical Intervention II: PR: Graduate admission, PSY 683 and C.I. Introduction to the principles and procedures of behavior modification as a clinical intervention technique.
RADIO/TELEVISION

RTV 337 4 (1, 3) W, S, F
Broadcast Techniques: 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.

RTV 340 4 (4, 0) W
Audio Production: PR: RTV 337 or C.I. The production of music (live and recorded), talk, interview, discussion, sports and documentary including performance (talent and announcing) and direction.

RTV 341 4 (4, 0) W
Television Production: PR: RTV 337 or C.I. Emphasis on the coordination of talent, cameras, visuals, audio and lighting with the dramatic values of the presentation.

RTV 342 4 (4, 0) W
Broadcast Journalism I: PR: COM 319 or C.I. Historical, legal, and quasi-legal influences on broadcast news; introduction to news sources, writing and interviewing techniques for radio-television news.

RTV 343 4 (4, 0)

RTV 344 4 (4, 0)
Broadcast Continuity and Programming I: Practice in the preparation of written materials for all kinds of radio and television programs except news, documentary, and drama. Examination of program practices, development, and traffic systems.

RTV 345 4 (4, 0) W
Films for Television: Principles and practices of 8mm and 16mm film usage within the television industry.

RTV 347 4 (4, 0)
Television Scene Design: PR: RTV 337 or C.I. Study, application, and creative utilization of staging, lighting, graphics, special effects, costuming, and make-up for television production.

RTV 355 4 (4, 0) F
Foundations of Broadcasting: Nature of the media, the mechanics of operation, history, economics, programming, and internal and external control.

RTV 441 4 (4, 0)
Television Directing: PR: RTV 341. The planning, preparation and directing of programs with emphasis on dramatic values of composition, movement, position, action, timing, pacing, climax, ascendant and descendant values; integration of the parts to the whole.

RTV 444 4 (4, 0) W
Broadcast Continuity and Programming II: PR: RTV 344 or C.I. Preparation of documentaries and dramatic writing for television and radio.

RTV 445 4 (1, 3) S
Television Film Production: PR: C.I. Planning and preparation of filmed documentaries, public service and commercial productions. (Laboratory hours to be arranged.)

RTV 446 4 (4, 0) S, F
Radio, Television and Society: A study of the impact of electronic media upon the habits, customs and thinking of our times. Considerations of internal media problems.

RTV 447 4 (4, 0)
Television Film Documentary: PR: C.I. Historical developments, styles, and production techniques of the television film documentary.

RTV 448 4 (4, 0) Su
Broadcast Regulations: PR: RTV 355 or RTV 342. Federal, state, local and self-regulator agencies and practices which govern electronic media.

RTV 450 4 (4, 0)

RTV 451 3 (3, 0)
Radio-Television Advertising: PR: COM 434 or C.I. Radio and television as advertising media; advertisers' demands and budget; appropriate programs for the sponsors' needs; writing of commercial continuity.

RTV 452 4 (4, 0) W, Su
Broadcast Criticism: Evaluation and criticism of past and present radio and television programs, policies, and critics. Concentration on the problem of criteria development.

RTV 453 4 (4, 0)
Educational Broadcasting: Values and potentials of radio and television in education, with particular emphasis on current use of the media in elementary and secondary schools, colleges and universities, and adult education.

RTV 454 4 (4, 0)
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 455 4 (4, 0)
International Broadcasting: Comparative analysis of national broadcast systems. World broadcasting as a social, political and economic force.
RTV 458 4 (4, 0) S
Broadcast Management: PR: RTV 448. Consideration of broadcast management problems in station operations at the local, regional, and national levels.

SOCIAL SCIENCE

SOC 490 2 (2, 0) W, Su, F
Senior Seminar: Social Sciences in Human Affairs: An overview of the development, purposes, and functioning of the social sciences in modern society. Primarily intended for senior students. Offered as one of the Advanced Environmental Studies seminars. Not open to students in the College of Social Sciences.

SOCIOLOGY

Introductory Sequence: SOC 201, 202.


Anthropology Concentration: SOC 310, 311, 314, 315, 316, 402.


Social Organization: SOC 325, 326, 333, 335, 407, 411, 416.


SOC 201 3 (3, 0) W, Su, F
General Sociology: An introduction to the principles of sociology. Primary emphasis is given to the understanding and application of such concepts as human interaction, the nature of the group and group interrelationships, social and cultural systems, the individual as a reflection of his group associations.

SOC 202 3 (3, 0) W, Su, F
General Sociology: PR: SOC 201. Continuation of SOC 201.

SOC 304 4 (4, 0) S, F
The Development of Social Thought: PR: SOC 201. 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 social life to World War II.

SOC 306 4 (4, 0) W
Modern Sociological Thought: PR: SOC 201 and SOC 304. A study of major European and American contributors to, and schools of, modern sociology from World War II to the present.

SOC 307 4 (4, 0) W, Su
The Sociology of Religion: Patterns in religious behavior in various societies with primary emphasis on myth, rite, taboo and festival as social phenomena.

SOC 308 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. A consideration of origins, social organization, environmental adaptation, religion, and inter-tribal contact.

SOC 309 4 (4, 0) F

SOC 310 4 (4, 0) S, F

SOC 311 4 (4, 0) W, Su
Social Anthropology: Framework and principles of sociocultural organization as exemplified among various cultures and ethnic groups around the world. Deals with kinship subsistence techniques, political structure, language, culture and personality, and other topics which combine to form the "holistic approach" of anthropology.

SOC 312 4 (4, 0) S, F
Old World Prehistory: PR: SOC 310 and SOC 311. An introduction to the emergence of prehistoric archeology as a discipline, review of fundamental theoretical approaches to prehistory, and survey of the archeological evidence for prehistoric cultural manifestations in the Old World from earliest times to the emergence of certain civilizations.

SOC 313 4 (4, 0) W
New World Prehistory: PR: SOC 310 and SOC 311. An introductory to the development of archeological methods and theories in the New World, development of certain space-time frameworks and surveys of some findings concerning Pre-Columbian peoples.

SOC 314 4 (4, 0) W
Cultural Anthropology: PR: SOC 310 and SOC 311. Emergence and history of man's cultures, their evolution and development, and the structure and functioning of human cultures in every time and place.

SOC 315 4 (4, 0)
Physical Anthropology: PR: SOC 310 and SOC 311. The study of man as a product of the evolutionary process. Study and analysis of diversity among present human populations.

SOC 316 4 (4, 0)
Comparative Social Organization: PR: SOC 310 and SOC 311. Introduction to anthropological viewpoints on role of marriage, family, kin groups, and descent as focal points for the study of economic, political and ideological aspects of social organization.

SOC 317 4 (4, 0) W
SOC 320  
Collective Behavior: PR: SOC 201. An analysis of the way in which new social groupings arise from unstructured situations. Standard topics include behavior of mobs, riots, crowds and spatially dispersed collectives.

SOC 325  
Urban Sociology: PR: SOC 201. Historical roots of urbanization. Impact of city life on social actions, social relationships, social institutions and the types of civilizations derived from and based on urban modes of living.

SOC 326  

SOC 331  
Social Problems: PR: SOC 201. Major social problems created by the complex social situations of modern life. Sociological analysis of such problem areas as crime and delinquency, poverty, racial tensions, over-population, and drug addiction.

SOC 333  
Industrial Sociology: PR: SOC 201. Application or development of principles of sociology relevant to the industrial mode of production and the industrial way of life.

SOC 335  
Social Institutions: PR: SOC 201. Social institutions, social differentiation, and social control, with emphasis on American and other modern societies.

SOC 336  
Social Stratification: PR: SOC 201. Study of class, status and power; cultural variations in stratification system; patterns of mobility and change.

SOC 340  

SOC 341  

SOC 342  

SOC 343  
The Community and Social Welfare: PR: SOC 340. The community as a social system in meeting human needs. Emphasis on private agencies, including their organization, functions, interrelationships and coordination with governmental agencies.

SOC 344  
Sociology of Deviant Behavior: PR: SOC 201. 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 345  
Juvenile Delinquency: PR: SOC 201. Types of delinquent behavior found among juveniles; possible causes and ways society attempts to treat the various forms of delinquency.

SOC 346  

SOC 347  
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 348  
Sociology of Alcoholism: PR: SOC 201. Introduction to the nature of alcoholism and review of its impact on society.

SOC 349  
Human Growth and Development: PR: SOC 340. Development of an understanding of individual physical, mental and emotional growth from birth to death, recognizing social and cultural influences on the development.

SOC 350  
Interviewing in Social Work Practice: PR: SOC 340. Examination of interviewing as the primary medium through which social work is practiced with emphasis on the development of methods, skills and techniques.

SOC 352  
Race and Ethnic Minorities in the United States: PR: SOC 201. Causes and consequences of group conflict, with emphasis upon majority-minority relations, prejudice and discrimination, alternative theories of prejudice, the effects of minority status on individuals and possibilities for attitude and behavior change.

SOC 353  
Culture and Personality: PR: SOC 201. Theories of the variations in personality in relation to culture and group life in tribal and modern societies.

SOC 354  
Sociology of Adolescence: PR: SOC 201. 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 360  
SOC 362  
Contemporary Woman and Society: PR: SOC 201. An introduction to the changing system of the American Woman in contemporary society with emphasis on the political, historical, economic, and cultural forces influencing her role.

SOC 380  

SOC 401  
Individual in Sociology: PR: 201. Inquiry into social dimensions of small group behavior, emphasizing interactive process involved in group behavior including socialization and involvement of the self-concept from the Meadian perspective.

SOC 402  
Method and Theory in Anthropology: PR: SOC 310 and SOC 311. Central methodological and theoretical concerns of anthropology in its emergence as a separate discipline and field of study. Cultural evolutionism, diffusionism, historical particularism, functionalism and their role in the development of anthropology.

SOC 403  
Anthropological Linguistics: PR: SOC 310, SOC 311, and ENG 371. Survey of anthropological linguistic field techniques in non-native cultures and application of linguistic theories to study of socio-cultural systems.

SOC 405  
Medical Sociology: Social organization of medical care: patterns of morbidity and mortality, social epidemiology and effects of disease, utilization of medical services, medical practice, programs and organizations.

SOC 406  
Social Gerontology: PR: SOC 201. An examination of the sociological aspects of aging in the contemporary United States. Special needs of the aged in housing, leisure, employment income maintenance, recreation and health will be considered as well as programs and services designed to meet their needs.

SOC 407  
The Family: PR: SOC 201. The study of the family as a social institution. The family through history, and the family cross-culturally. The modern American family as a distant social and cultural complex. Changes in the family system. Courtship and marriage.

SOC 408  
Social Change in Developing Areas: PR: SOC 201 and one course in statistics. A study of growth problems in the emerging nations of Africa and Latin America.

SOC 411  
Population: PR: SOC 201. Concerned with the study of human population, its distribution, composition and change.

SOC 412  
Field Experience and Seminar: PR: SOC 340, 341, 342, 343, 349, and 350. Supervised learning experiences in local social agencies relating theory and academic preparation with practice. Eight hours per week plus two hour weekly seminar.

SOC 416  
Human Ecology: PR: SOC 201. Principles governing the spatial distribution of human populations and activities within an area.

SOC 420  
Political Sociology: Sociological analysis of political and para-political groups; socio-economic variables of voting behavior; power elites; societies and systems of government.

SOC 433  
Sociology of Occupations and Professions: PR: 201. 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 435  
Sociology of Education: PR: 201. This course examines the sociological dimensions of the educational institutions including the impact of social structure on learning and the role of education in social change.

SOC 451  
Contemporary Social Movements: PR: SOC 201. Causes and effects of various social movements in American society compared to large-scale upheavals throughout the West. Considers various theories of explanation.

SOC 452  
Sociology of Drug Abuse: PR: SOC 201 or C.I. The analysis of the socio-cultural elements of the drug culture. This course will survey problems, impact on society, and possible solutions.

SOC 501  
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.

SOC 502  
Proseminar in Sociology: PR: Six hours of Sociology and graduate level status or C.I. study of social change, institutions, large organizations, and internal behavior.

SPEECH

SPE 101  
Fundamentals of Oral Communication: Use of the body and voice; participation in various speaking situations; planning, organizing, and delivering public speeches.

SPE 102  
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.


SPE 262 Psychology of Oral Communication: Psychological principles involved in the communicative process with application to individuals and groups.


SPE 266 Speech Composition: PR: SPE 101 or C.I. Study and practice in the preparation and delivery of argumentative speeches emphasizing argument, evidence and organization.

SPE 267 Platform Speaking: PR: SPE 101 or C.I. Theory and method; training in selecting and organizing materials for various types of speeches; practice in thinking and speaking before an audience; contemporary speeches as examples.

SPE 268 Physiological Bases of Speech and Hearing: An introduction to the anatomical, physiological, and physical elements underlying the communication process.

SPE 269 Parliamentary Procedure: PR: SPE 101 or C.I. Study and participation and leadership in the conduct of formal business meetings.

SPE 270 Speech and Human Relations: Introduction to semantics; symbols and meaning and the relationship with human behavior.

SPE 271 History and Criticism of American Public Address: Rhetorical criticism of speaking and writing of American statesmen who have had an influence on political, social, and economic milieu of their times.

SPE 272 History and Criticism of British Public Address: Rhetorical criticism of speaking and writing of British statesmen who have had an influence on political, social, and economic milieu of their times.

SPE 360 Argumentation and Debate: PR: SPE 101 or C.I. Study and practice in the preparation and delivery of argumentative speeches emphasizing argument, evidence and organization.

SPE 361 Persuasion: Motivation: PR: SPE 101 or C.I. A study of motivational factors involved in persuasive speaking to secure belief and action.

SPE 362 Platform Speaking: PR: SPE 101 or C.I. Theory and method; training in selecting and organizing materials for various types of speeches; practice in thinking and speaking before an audience; contemporary speeches as examples.

SPE 363 Physiological Bases of Speech and Hearing: An introduction to the anatomical, physiological, and physical elements underlying the communication process.

SPE 365 Parliamentary Procedure: Principles and rules governing participation and leadership in the conduct of formal business meetings.

SPE 366 Speech Composition: PR: SPE 101 or C.I. Study and practice in the preparation and delivery of speeches from manuscripts with emphasis on the development of oral style.

SPE 371 Speech and Human Relations: Introduction to semantics; symbols and meaning and the relationship with human behavior.

SPE 372 History and Criticism of American Public Address: Rhetorical criticism of speaking and writing of American statesmen who have had an influence on political, social, and economic milieu of their times.

SPE 373 History and Criticism of British Public Address: Rhetorical criticism of speaking and writing of British statesmen who have had an influence on political, social, and economic milieu of their times.

SPE 473 Directing Extracurricular Speech Activities: Debate, extemporaneous speech and other speech events; selection and training of contestants; interschool and intramural speech activities.

ENVIRONMENTAL STUDIES

PHYSICAL EDUCATION

The Environmental Studies Physical Education Program is designed to enhance the physical and mental development of the student. A student may receive three quarter hours credit toward graduation by enrolling and satisfactorily completing any one of the following courses:

ESPE 301 Aquatics: A study and application of the physiological benefits of basic aquatic developmental skills — elementary and advanced strokes, water safety, springboard diving, and interval training.

ESPE 302 Body Development (M)

ESPE 303 Body Development (W): A study and application of the metabolic, neuromuscular, and cardiovascular changes resulting from select physical activities.

ESPE 304 Golf: A study of performance and application in basic and advanced skills, rules, and etiquette. Physiological and social values accruing from this carry-over activity.

ESPE 305 Tennis: A study of performance and application in basic and advanced skills, rules, and etiquette. Physiological and social values accruing from this carry-over activity.

ESPE 306 Life Saving: Instruction, training and certification in basic life saving swimming skills.

ESPE 307 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.

ESPE 308 Interpretive Dance: Instruction and analysis of creative dance performance as an art form.

ESPE 483 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.

**COOPERATIVE EDUCATION**

COED 100  
Cooperative Education, Freshman Year  
Qtr. Hrs. - 0*

COED 200  
Cooperative Education, Sophomore Year  
Qtr. Hrs. - 0*

COED 300  
Cooperative Education, Junior Year  
Qtr. Hrs. - 0*

COED 400  
Cooperative Education, Senior Year  
Qtr. Hrs. - 0*

*May be repeated.
FACULTY

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