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1985-86

Louisiana
TECH
UNIVERSITY

BULLETIN

HOW TO USE THIS BULLETIN

The bulletin is divided into four basic sections as follows:

GENERAL INFORMATION — This section contains information that is non-curricular in nature, but important to the university student. In it you will find information on: history of the University, accreditation, admissions and registration, expenses, academic regulations, student life, and other general type information.

ACADEMIC PROGRAM — The major academic divisions of the University are described in this section. Descriptions include programs offered, degree requirements, departmental divisions, and curricula requirements. The primary divisions within this section are:

Division of Admissions, Basic and Career Studies

College of Administration and Business

College of Arts and Sciences

College of Education

College of Engineering

College of Home Economics

College of Life Sciences

The Graduate School

Department of Air Force Aerospace Studies

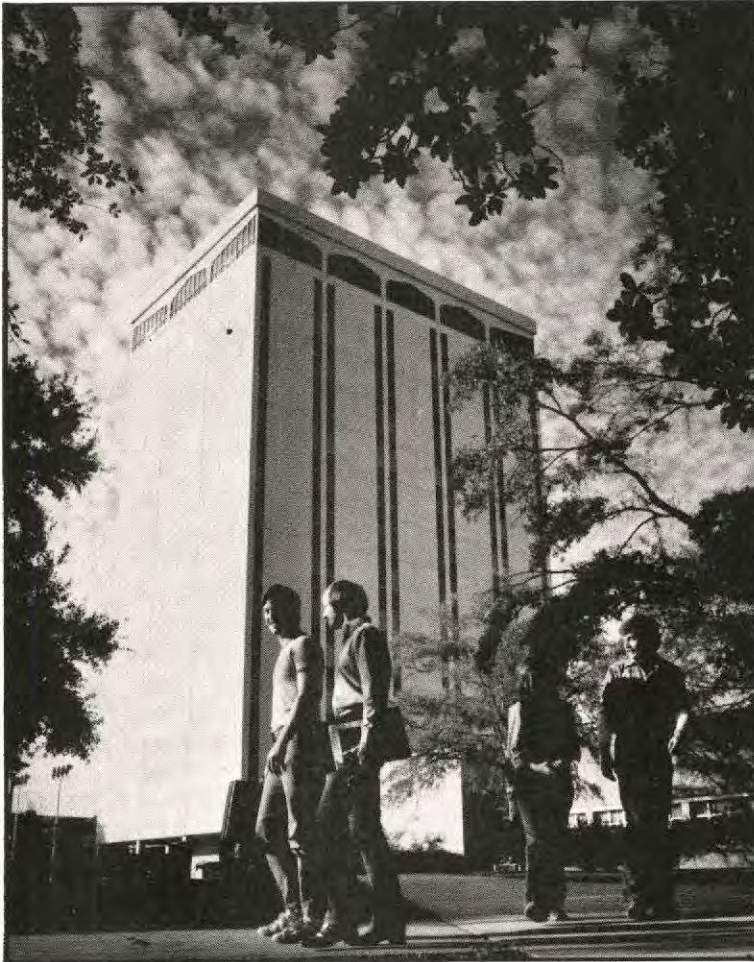
COURSES OF INSTRUCTION — An alphabetical listing of courses is given with description, laboratory-lecture requirements, and credit hour value for all undergraduate and graduate courses offered.

UNIVERSITY PERSONNEL — An alphabetical listing for the following groups: faculty, administrators, councils, committees, and commissions is presented.

LOUISIANA TECH UNIVERSITY



F. Jay Taylor
President



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1985-86
USPS 320-580

Louisiana Tech University Subscribes
To The Policy of Equal Opportunity

Vol. LXXXIII

4th Qtr. (April May June) 1985

Number 4

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Executive Director

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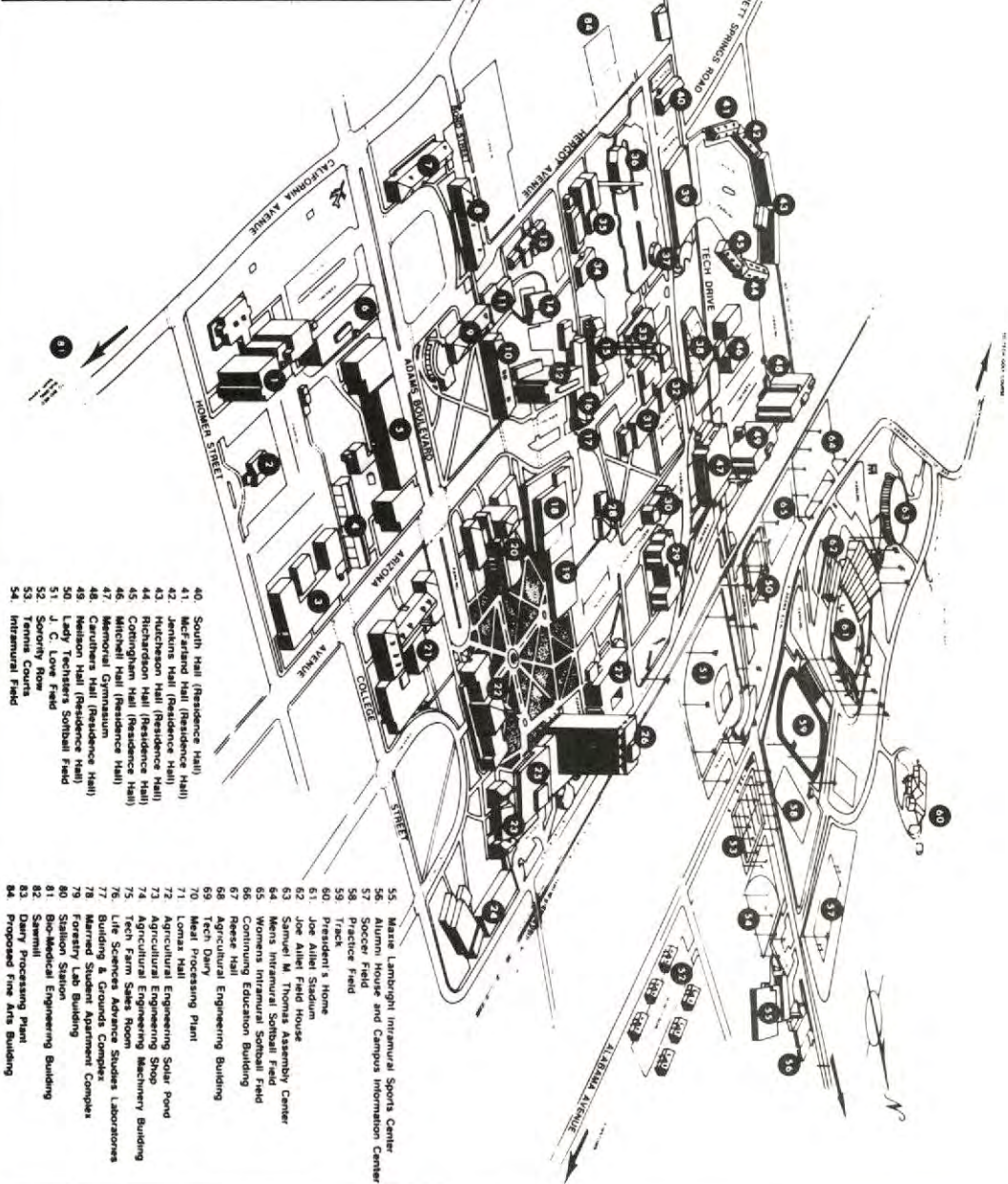
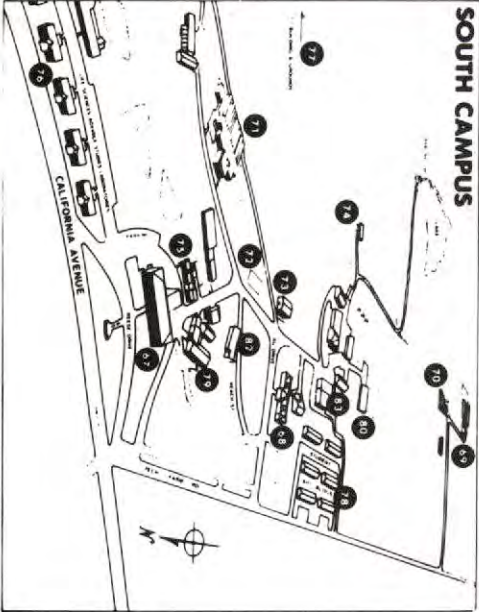
LOUISIANA TECH UNIVERSITY

FACILITIES

1. Kidd Hall (Residence Hall)
2. Nursery School (Home Economics)
3. Northern Hall (Engineering)
4. Engineering Annex
5. Carson-Taylor Hall (Home Economics & Sciences)
6. Graham Hall (Residence Hall)
7. Graham Hall (Residence Hall)
8. Dudley Hall (Residence Hall)
9. Adams Hall (Residence Hall)
10. Aswell Hall (Residence Hall)
11. Adams Cafeteria
12. Harper Hall (Residence Hall)
13. T. H. Harris (Housing Office)
14. Women's Gymnasium
15. J. C. Love Field
16. Tolliver Dining Hall (Upstairs)
17. Campus Police & Post Office (Downstairs)
18. Student Center
19. Bookstore
20. Howard Performing Arts Center
21. Bogard Hall (Engineering)
22. Keeney Hall (Administration)
23. Visual Arts Building
24. Administration & Business Building
25. Prescott Library
26. Wray Tower of Learning
27. Madison Hall (Arts and Sciences)
28. Former Presidents Home
29. Hale Hall (Art Studios)
30. Robinson (Speech & Hearing Clinic)

31. Woodard Hall (Education)
32. Education Laboratory
33. Library
34. Garage (Buildings and Grounds)
35. Power Plant
36. A. E. Phillips Laboratory School
37. Planetarium
38. M. S. Carroll Natatorium
39. Wilson Cafeteria

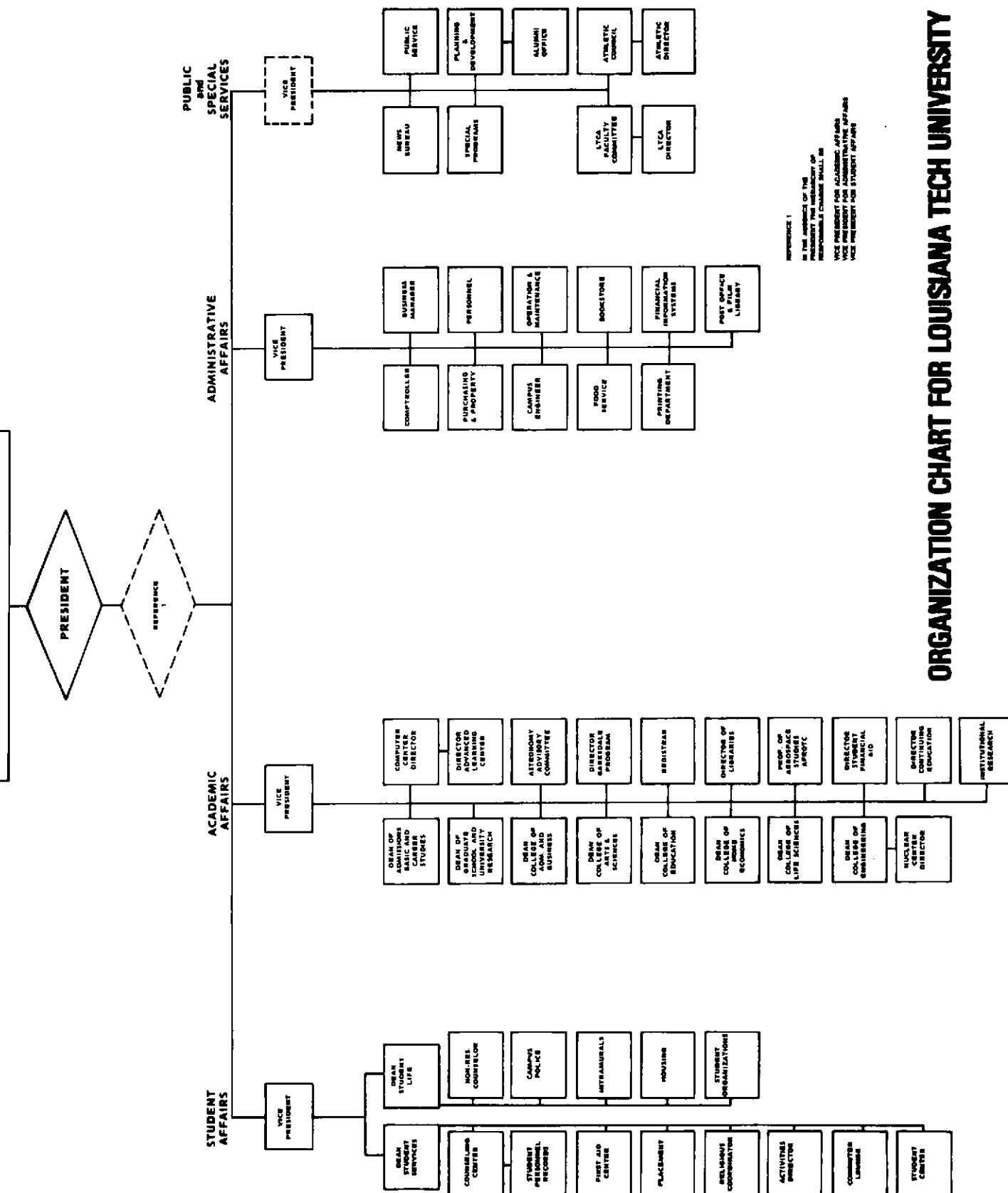
SOUTH CAMPUS



40. South Hall (Residence Hall)
41. McFarland Hall (Residence Hall)
42. Jenkins Hall (Residence Hall)
43. Richardson Hall (Residence Hall)
44. Richardson Hall (Residence Hall)
45. Cottingham Hall (Residence Hall)
46. Mitchell Hall (Residence Hall)
47. Mitchell Hall (Residence Hall)
48. Caruthers Hall (Residence Hall)
49. Neilson Hall (Residence Hall)
50. J. C. Love Field
51. J. C. Love Field
52. J. C. Love Field
53. J. C. Love Field
54. J. C. Love Field

55. M. S. Carroll Natatorium
56. M. S. Carroll Natatorium
57. M. S. Carroll Natatorium
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84. M. S. Carroll Natatorium

BOARD OF TRUSTEES



REFERENCE 1
IN THE ABSENCE OF THE
PRESIDENT THE VICE PRESIDENT OF
STUDENT AFFAIRS SHALL BE
RESPONSIBLE CHAIRMAN SHALL BE
VICE PRESIDENT FOR ACADEMIC AFFAIRS
VICE PRESIDENT FOR ADMINISTRATIVE AFFAIRS
VICE PRESIDENT FOR STUDENT AFFAIRS

ORGANIZATION CHART FOR LOUISIANA TECH UNIVERSITY

UNIVERSITY CALENDAR

ACADEMIC YEAR 1985-86

SUMMER QUARTER 1985

Completed applications and transcripts for new Graduate School applicants due in Admissions Office.....	May 21, 1985 (Tues.)
Application for undergraduate admission or readmission due	May 28 (Tues.)
Residence Halls Open	9:00 a.m., June 3 (Mon.)
Food Service Opens, night meal	June 3 (Mon.)
Math Placement Exam	2:00 p.m., June 3 (Mon.) GTM 105
Foreign Language Placement Exams.....	3:30 p.m. June 3 (Mon.)
Mini-Orientation (all new students)	4:00 p.m. June 3 (Mon.) WT 244
Summer Quarter begins.....	June 4 (Tues.)
Registration (alphabetical order) for all sessions	June 4 (Tues.)
Classes begin. Late registration fee applies	June 5 (Wed.)
Fourth of July holiday for student begins.....	End of classes, July 3 (Wed.)
Food Service closes, after night meal.....	July 3 (Wed.)
Food Service opens, night meal.....	July 7 (Sun.)
Fourth of July holiday for students ends.....	8:00 a.m., July 8 (Mon.)
First Session ends.....	July 12 (Fri.)
Second Session begins. Late registration fee applies.....	July 15 (Mon.)
Last day of classes	August 16 (Fri.)
Food Service closes, after night meal.....	August 16 (Fri.)
Residence Halls close	12:00 noon, August 17 (Sat.)
Commencement exercises	10:00 a.m. August 22 (Thurs.) Thomas Assembly Center
Summer Quarter ends	August 22 (Thurs.)
Courses offered First Session only	June 4-July 12
Courses offered Second Session only	July 15-August 22

FALL QUARTER 1985

Completed applications and transcripts for new Graduate School applicants due in Admissions Office.....	August 20 (Tues.)
Applications for Undergraduate admission or readmission due.....	August 27 (Tues.)
Residence Halls open	9:00 a.m., Sept. 3 (Tues.)
Food Service opens, night meal	Sept. 3 (Tues.)
Math Placement Exam	2:00 p.m., Sept. 3 (Tues.) GTM 105
Foreign Language Placement Exam	3:30 p.m. Sept. 3 (Tues.)
Mini-Orientation (first-time students)	4:00 p.m. Sept. 3 (Tues.) WT 244
Fall Quarter begins	Sept. 4 (Wed.)
Registration (alphabetical order)	Sept. 4 (Wed.)-Sept. 5 (Thurs.)
Classes begin. Late registration fee applies	Sept. 6 (Fri.)
Last day of classes	Nov. 15 (Fri.)
Food Service closes, after night meal.....	Nov. 15 (Fri.)
Residence Halls close	12:00 noon, Nov. 16 (Sat.)
Commencement exercises	10:00 a.m., Nov. 19 (Tues.) Thomas Assembly Center
Fall Quarter ends	Nov. 19 (Tues.)

WINTER QUARTER 1985-86

Completed applications and transcripts for new Graduate School applicants due in Admissions office	Nov. 19 (Tues.)
Applications for Undergraduate admission or readmission due	Nov. 26 (Tues.)
Residence Halls open	9:00 a.m., Dec. 2 (Mon.)
Food Service opens, night meal	Dec. 2 (Mon.)
Math Placement Exam	2:00 p.m., Dec. 2 (Mon.) GTM 105
Foreign Language Placement Exams.....	3:30 p.m. Dec. 2 (Mon.)
Mini-Orientation (all new students)	4:00 p.m. Dec. 2 (Mon.) WT 244
Winter Quarter begins.....	Dec. 3 (Tues.)
Registration (alphabetical order)	Dec. 3 (Tues.)-Dec. 4 (Wed.)
Classes begin. Late registration fee applies	Dec. 5 (Thurs.)
Christmas recess for Students begins	End of classes, Dec. 20 (Fri.)
Residence Halls close	7:00 p.m., Dec. 20 (Fri.)
Food Service closes, after night meal.....	Dec. 20 (Fri.)
Residence Halls open	1:00 p.m., Jan 5, 1986 (Sun.)

Food Service opens, night meal.....	Jan. 5 (Sun.)
Christmas recess for students ends	8:00 a.m., Jan. 6 (Mon.)
Mardi Gras Holidays for students begins.....	end of classes, Feb. 7 (Fri.)
Food Service closes, after night meal.....	Feb. 7 (Fri.)
Food Service opens, night meal.....	Feb. 11 (Tues.)
Mardi Gras Holidays for students ends	8:00 a.m. Feb. 12 (Wed.)
Last day of classes.....	Feb. 28 (Fri.)
Food Service closes, after night meal.....	Feb. 28 (Fri.)
Residence Halls close.....	12:00 noon, Mar. 1 (Sat.)
Commencement exercises	10:00 a.m., Mar. 6 (Thurs.) Thomas Assembly Center
Winter Quarter ends	March 6 (Thurs.)

SPRING QUARTER 1986

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	Feb. 25 (Tues.)
Applications for Undergraduate admission or readmission due.....	Mar. 4 (Tues.)
Residence Halls open	9:00 a.m., Mar. 10 (Mon.)
Food Service opens, night meal.....	Mar. 10 (Mon.)
Math Placement Exam	2:00 p.m., Mar. 10 (Mon.) GTM 105
Foreign Language Placement Exam	3:30 p.m. Mar. 10 (Mon.)
Mini-Orientation (all new students)	4:00 p.m., Mar. 10 (Mon.) WT 244
Spring Quarter begins	March 11 (Tues.)
Registration (alphabetical order)	Mar. 11 (Tues.)-Mar. 12 (Wed.)
Classes begin. Late registration fee applies	Mar. 13 (Thurs.)
Easter Recess for students begins	End of classes, Mar. 27 (Thurs.)
Residence Halls close	7:00 p.m., Mar. 27 (Thurs.)
Food Service closes, after night meal.....	Mar. 27 (Thurs.)
Residence Halls open	1:00 p.m., Mar. 31 (Mon.)
Food Service opens, night meal.....	Mar. 31 (Mon.)
Easter Recess for students ends.....	8:00 a.m., Apr. 1 (Tues.)
Last day of classes.....	May 23 (Fri.)
Food Service closes, after night meal.....	May 23 (Fri.)
Commencement Exercises	2:00 p.m., May 24 (Sat.) Thomas Assembly Center
Residence Halls close	12:00 noon, May 25 (Sun.)
Spring Quarter ends	May 24 (Sat.)

ACADEMIC YEAR 1986-1987

SUMMER QUARTER 1986

Completed applications and transcripts for new Graduate School applicants due in Admissions Office...	May 20, 1986 (Tues.)
Applications for undergraduate admission or readmission due	May 27 (Tues.)
Residence Halls open	9:00 a.m., June 2 (Mon.)
English Placement Exam	9:00 a.m., June 2 (Mon.)
Reading Placement Exam.....	11:00 a.m., June 2 (Mon.)
Math Placement Exam	2:00 p.m., June 2 (Mon.)
Foreign Language Placement Exam	3:30 p.m., June 2 (Mon.)
Mini-Orientation (First-time students)	4:00 p.m., June 2 (Mon.)
Food Service opens, Night meal	June 2 (Mon.)
Summer Quarter begins.....	June 3 (Tues.)
Registration	June 3 (Tues.)
Classes begin. Late registration fee applies	June 4 (Wed.)
Fourth of July holiday begins	End of day, July 3 (Thurs.)
Food Service closes after noon meal	July 3 (Thurs.)
Food Service opens, night meal.....	July 6 (Sun.)
Fourth of July holiday ends	July 7 (Mon.)
First Session ends.....	July 11 (Fri.)
Second Session begins. Late registration fee applies.....	July 14 (Mon.)
Last day of classes.....	Aug. 15 (Fri.)
Food Service closes, after night meal.....	Aug. 15 (Fri.)
Residence Halls close.....	12 noon Aug. 16 (Sat.)
Commencement Exercises	10:00 a.m., Aug. 21 (Thurs.) Thomas Assembly Center
Summer Quarter ends	Aug. 21 (Thurs.)
Courses offered 1st session only.....	June 3 - July 11
Courses offered 2nd session only	July 14 - August 21

FALL QUARTER 1986

Completed applications and transcripts for new Graduate School applicants due in Admissions Office	Aug. 19 (Tues.)
Applications for undergraduate admission or readmission due in Admissions Office	Aug. 26 (Tues.)
Residence Halls open	9:00 a.m., Sept. 2 (Tues.)
Food Service opens, noon meal	Sept. 2 (Tues.)
English Placement Exam	9:00 a.m., Sept. 2 (Tues.)
Reading Placement Exam	11:00 a.m., Sept. 2 (Tues.)
Math Placement Exam	2:00 p.m., Sept. 2 (Tues.)
Foreign Language Placement Exams	3:30 p.m., Sept. 2 (Tues.)
Mini-Orientation (First-time students)	4:00 p.m., Sept. 2 (Tues.)
Fall Quarter begins	Sept. 3 (Weds.)
Registration	Sept. 3 (Weds.) - Sept. 4 (Thurs.)
Classes begin. Late registration fee applies	Sept. 5 (Fri.)
Last day of classes	Nov. 14 (Fri.)
Food Service closes after night meal	Nov. 14 (Fri.)
Residence Halls close	12 noon, Nov. 15 (Sat.)
Commencement Exercises	10:00 a.m., Nov. 18 (Tues.) Thomas Assembly Center
Fall Quarter ends	Nov. 18 (Tues.)

WINTER QUARTER 1986-1987

Completed applications and transcripts for new Graduate School Applicants due in Admissions Office	Nov. 18, 1986 (Tues.)
Applications for Undergraduate admission or readmission due in Admissions office	Nov. 25 (Tues.)
Residence Halls open	9:00 a.m., Dec. 1 (Mon.)
English Placement Exams	9:00 a.m., Dec. 1 (Mon.)
Reading Placement Exams	11:00 a.m., Dec. 1 (Mon.)
Math Placement Exams	2:00 p.m., Dec. 1 (Mon.)
Foreign Language Exams	3:30 p.m., Dec. 1 (Mon.)
Mini-Orientation (First-time students)	4:00 p.m., Dec. 1 (Mon.)
Food Service opens, night meal	Dec. 1 (Mon.)
Registration	Dec. 2 (Tues.) - Dec. 3 (Weds.)
Classes begin. Late registration fee applies	Dec. 4 (Thurs.)
Christmas Holidays begins	End of class day, Dec. 19 (Fri.)
Residence Halls close	7:00 p.m., Dec. 19 (Fri.)
Food Service closes, after night meal	Dec. 19 (Fri.)
Residence Halls open	1:00 p.m., Jan. 4, 1987 (Sun.)
Food Service opens, night meal	Jan. 4 (Sun.)
Christmas Holidays ends	8:00 a.m., Jan. 5 (Mon.)
Last day of classes	Feb. 27 (Fri.)
Food Service closes, after night meal	Feb. 27 (Fri.)
Residence Halls close	12 noon Feb. 28 (Sat.)
Commencement Exercises	10:00 a.m., Mar 5 (Thurs.) Thomas Assembly Center
Winter Quarter ends	Mar. 5 (Thurs.)

SPRING QUARTER 1987

Completed applications and transcripts for new Graduate School Applicants due in Admissions Office ..	Feb. 25, 1987 (Wed.)
Applications for undergraduate admission or readmission due in Admissions Office	Mar. 4 (Wed.)
Residence Halls open	9:00 a.m., Mar 9 (Mon.)
Food Service opens, night meal	Mar. 9 (Mon.)
English Placement Exams	9:00 a.m., Mar 9 (Mon.)
Reading Placement Exams	11:00 a.m., Mar 9. (Mon.)
Math Placement Exams	2:00 p.m., Mar. 9 (Mon.)
Foreign Language Placement Exams	3:30 p.m., Mar 9 (Mon.)
Mini-Orientation (First-time students)	4:00 p.m., Mar. 9 (Mon.)
Spring Quarter begins	Mar. 10 (Tues.)
Registration	Mar. 10 (Tues.) - Mar. 11 (Weds.)
Classes begin. Late registration fee applies	Mar. 12 (Thurs.)
Easter Holidays begin	End of classes, Apr. 16 (Thurs.)
Residence Halls close	7:00 p.m., Apr. 16 (Thurs.)
Food Service closes, after night meal	Apr. 16 (Thurs.)
Residence Halls open	1:00 p.m., Apr. 20 (Mon.)
Food Service opens, night meal	Apr. 20 (Mon.)
Easter Holidays end	8:00 a.m., Apr. 21 (Tues.)
Last day of classes	May 22 (Fri.)
Food Service closes, after night meal	May 22 (Fri.)
Commencement Exercises	2:00 p.m., May 23 (Sat.) Thomas Assembly Center

Residence Halls close 12 noon, May 24 (Sun.)
Spring Quarter ends May 23 (Sat.)

DIRECTORY OFFICERS OF THE ADMINISTRATION

F. Jay Taylor, B.A., M.A., Ph.D. (1962)	President and Professor
Daniel D. Reneau, B.S., M.S., Ph.D. (1967)	Vice President for Academic Affairs
George W. Byrnside, B.S. (1960)	Vice President for Administrative Affairs
Robert Patterson, B.S., M.S. (1960)	Vice President for Student Affairs
Bob R. Owens, B.B.A., M.B.A., Ph.D. (1965)	Dean, College of Administration and Business
Paul J. Pennington, B.A., M.A., Ph.D. (1952)	Dean, College of Arts and Sciences
Jerry W. Andrews, B.S., M.S., Ed.D. (1982)	Dean, College of Education
C. Ray Wimberly, B.S., M.S., Ph.D. (1982)	Dean, College of Engineering
Jeanne M. Gilley, B.A., M.S.E., Ph.D. (1973)	Dean, College of Home Economics
Hal B. Barker, B.S., M.S., Ph.D. (1949)	Dean, College of Life Sciences
Patsy Lewis, B.A., M.A. (1965)	Dean, Division of Admissions, Basic and Career Studies
John E. Maxfield, B.S., M.S., Ph.D (1981)	Dean, Graduate School and University Research

WHOM TO CONTACT AT LOUISIANA TECH FOR:

Academic Records, Transcripts and Registration	Office of the Registrar 318/257-2176
Admissions (Undergraduate and Graduate), Orientation, and High School Relations	Division of Admissions, Basic and Career Studies 318/257-3036
Continuing Education	Office of Continuing Education 318/257-3848
Dormitories and Student Housing	Housing Office 318/257-4917
Fees and Business Matters	Office of the Business Manager 318/257-4325
Financial Aid (Scholarships, Loans, Grants and Work-Study)	Director of Financial Aid 318/257-2641
Foreign Student Information	Counseling Center 318/257-2488
Graduate School	Dean of Graduate School 318/257-3354
Placement Office	Director of Placement 318/257-4336
Student Activities and Services	Student Center 318/257-3479
Veterans Information	Office of the Registrar 318/257-2176

General Information

HISTORY

Tech's formal name is Louisiana Tech University, but when it was founded (in 1894) by Act 68 of the General Assembly, it was called Industrial Institute and College of Louisiana. Act 68, which specified that the school be located in Ruston, provided for the establishment of "a first-class" institution designed to educate citizens of the state in the arts and sciences and in "the practical industries of the age." The school was located on 20 acres of land and in a single building, both donated by the city of Ruston. By September, 1895, with its president and faculty of six in residence, Tech opened its door to 202 students.

The first degree offered by the school was a "Bachelor of Industry." This degree was granted in fields as broadly diverse as music and telegraphy. The first student to receive the degree was Harry Howard, Class of 1897. Mr. Howard was not required to go through a formal graduation program. After his qualifications were examined, Col. A. T. Prescott, the school's first president, awarded the degree. The first graduation exercises were not held until the following year, 1898, when ten degrees were awarded in a ceremony at the Ruston Opera House. In all, there were 1,346 Bachelor of Industry degrees awarded.

Since 1894, the institution's name, purpose and functions have been modified as the needs of those whom it served have changed. In 1921, the school's name was changed to Louisiana Polytechnic Institute. The Bachelor of Industry degree was discarded and the degrees standard to American education were granted. As the college increased in enrollment and offerings, constant changes were made to meet these additional responsibilities; in 1970, the school's name was changed to Louisiana Tech University.

Since 1921, the University has prospered: there are 235 acres on the main campus, 472 at the demonstration farm, 94 acres of forest land in Webster Parish, 150 acres a few miles west of Ruston, and 5 acres on Lake D'Arbonne. In addition, Tech leases 4 acres for a Forestry Camp on Corney Lake and 352 acres of farm and pasture land for the animal production units. There are about 110 buildings on the campus and the majority are air conditioned.

The focal point of the campus is the 'Quadrangle', the center of which is a granite fountain named the 'The Lady of the Mist'. Prescott Memorial Library (named for the school's first president), Wylly Tower of Learning, and Madison Hall are at the north end of the Quadrangle. Keeny Hall (after the school's sixth president) is at the east side, Howard Center for the Performing Arts (for Tech's first graduate) is at the south side. The west side is the Student Center. The remaining buildings surround the 'Quadrangle'.

ACCREDITATION

Louisiana Tech University is accredited by the Southern Association of Schools and Colleges. It is also a member of the American Association of State Colleges and Universities, the American Council on Education, the Council of Graduate Schools in the United States, the Conference of Southern Graduate Schools, and the American Association of Collegiate Registrars and Admissions Officers and is affiliated with the National Commission on Accrediting and the National Council of University Research Administrators. Certain departments and colleges of the University are approved by professional accrediting organizations in specific fields: the Accreditation Council of the American Assembly of Collegiate

Schools of Business, the American Chemical Society, the Association for University Business and Economic Research, the Accreditation Board for Engineering and Technology, the American Home Economics Association, the National Association of Schools of Art, the American Medical Record Administration, the American Speech-Language-Hearing Association, the National Association of Schools of Music, the National Council for Accreditation of Teacher Education, the National Architectural Accrediting Board, the American Dietetics Association, the National League for Nursing, the Foundation for Interior Design Education Research, the Committee on Allied Health Education and Accreditation, and the Society of American Foresters.

EQUAL OPPORTUNITY POLICIES

Louisiana Tech University provides equal educational opportunities for all and this policy of equal opportunity is fully implemented in all programs.

ADMISSIONS

Louisiana Tech University has an open admissions policy as established by the State Board of Education. All high school graduates or students with equivalency diplomas are eligible for admission. There is no discrimination in admissions because of race, creed, sex, color, religion, national origin, age, handicap, marital status, or veteran status.

EMPLOYMENT

Louisiana Tech University is committed to the principle of providing the opportunity for learning and development of all qualified citizens without regard to race, sex, religion, color, national origin, age, handicap, marital status, or veteran status for admission to, participation in, or employment in the programs and activities which the University sponsors or operates.

The President of the University has established the policy that all employment practices will be supervised on a continuous basis to be sure that all University administrators, deans, directors, department heads, and other budget unit heads take positive affirmative action in complying with the goals of equal employment opportunity.

DIVISION OF FINANCIAL AID

The Division of Financial Aid makes every effort to assist all students who need financial assistance in pursuit of their college career. There is no discrimination against any person because of race, creed, sex, color, national origin, religion, age, handicap, marital status or veteran status.

FAMILY EDUCATIONAL RIGHTS PRIVACY ACT

The following statement is issued in compliance with the Family Educational Rights and Privacy Act of 1974:

Louisiana Tech University has the responsibility for effectively supervising any access to and/or release of official data/information about its students. Certain items of information about individual students are fundamental to the educational process and must be recorded. This recorded information concerning students must be used only for clearly-defined purposes, must be safeguarded and controlled to avoid violations of personal privacy, and must be appropriately disposed of when the justification for its collection and retention no

longer exists. In this regard, Louisiana Tech University is committed to protecting to the maximum extent possible the right of privacy of all the individuals about whom it holds information, records, and files. Access to and release of such records is restricted to the student concerned, to others with the student's written consent, to officials within the school, to a court of competent jurisdiction and otherwise pursuant to law.

NOTICE: THE REGULATIONS CONTAINED IN THIS BULLETIN ARE BASED UPON PRESENT AND FORESEEN CONDITIONS AND THE UNIVERSITY RESERVES THE RIGHT TO MODIFY ANY STATEMENT IN ACCORDANCE WITH UNFORESEEN CONDITIONS.

ADMISSIONS

Completed applications, American College Test scores and official transcripts should be in the Admissions Office two weeks prior to the beginning of each quarter to insure having registration materials available at the regularly scheduled registration. An application fee of \$5 is required with all applications for admission, readmission, or transfer of the undergraduate or graduate student. International students are required to pay a \$15 application fee.

A HIGH SCHOOL GRADUATE may be admitted to the University by ACT-Application. When a high school junior or senior takes the American College Test and lists Tech as one of the choices, a pre-printed admission form is sent to the student for verification. When the ACT-APP is returned with the \$5 fee, the student's registration materials are prepared. The student must graduate from a four-year course in an accredited secondary school, or have successfully completed the General Educational Development Test. All students are required to submit ACT scores and all out-of-state students (except Arkansas, Mississippi, and Texas) must make a composite score of at least 20.

All students are required to take a Mathematics Placement Test before enrolling in a mathematics course. Also, transfer students who have not had a mathematics course at another institution are required to take the placement test. The time for the placement test will be noted in the Schedule of Classes for each quarter.

ADMISSION BY TRANSFER is permissible if the transferring student is eligible to re-enter the institution from which the applicant is transferring and the student *must* meet Tech's entrance requirements.

APPLICANTS FOR READMISSION to Tech must complete an application for admission when the student has not been enrolled for one or more quarters (except for the summer term).

APPLICANTS FROM FOREIGN COUNTRIES

Applicants from foreign countries must meet all admissions requirements described above, and they must comply with the following policy:

Louisiana Tech University requires that all admitted students have sufficient knowledge of the English language to benefit from its program of study. All undergraduates whose first language is not English must take the Test of English as a Foreign Language (TOEFL). Applicants who score 500 or more on the examination, and who meet all other admissions qualifications, may proceed with an academic program. Applicants who score less than 500 are required to enroll in the English as a Foreign Language Program (EFL) of the College of Arts and Sciences.

ADMISSION TO THE GRADUATE SCHOOL requires that all official transcripts and admission application forms be submitted to the Admissions Office at least two (2) weeks in advance of registration for the session in which the student

expects to enroll. (See the Graduate School Section for specific details.)

AN EARLY ADMISSION POLICY for high ability students was adopted by the State Board of Education in 1971. To be eligible for consideration for this program the following requirements must be met: (1) A student must have maintained a "B" or better average on all work pursued during three years (six semesters) of high school; (2) A minimum ACT composite score of 24 must be made and this score submitted to the college prior to June 1; (3) The student must be recommended by the high school principal; (4) Upon earning a minimum of 24 semester hours at the college, the student will be issued a diploma by the high school last attended.

For additional information please write to: Admissions Office, Louisiana Tech University, Ruston, Louisiana 71272.

A SUMMER ENRICHMENT PROGRAM FOR HIGH SCHOOL STUDENTS (SET-Summer Enrichment at Tech) designed to enable capable high school juniors to invest the summer between their junior and senior years wisely has been in effect since 1964 with outstanding success. Special effort is exerted to choose courses that will not conflict with twelfth grade high school courses.

Grades and credits will be recorded by the Registrar but will be validated to the student's transcript only after application for validation of the credits. High school students who complete the Summer Music Camp at Louisiana Tech and who are eligible for the Summer Enrichment Program are permitted one semester hour credit of applied music. This credit will be validated on the student's transcript by the Registrar only after application for validation of the credit.

Anyone interested should write to: SET, Box 3178 T.S. Louisiana Tech University, Ruston Louisiana 71272.

ORIENTATION

Under the direction of the Division of Admissions, Basic and Career Studies, an Orientation program for all new freshmen is held each quarter preceding registration.

New Freshmen who have been accepted for the Fall Quarter are encouraged to attend one of six sessions of Summer Orientation. Each student selects courses and completes registration for the Fall Quarter, except for payment of fees. Close academic direction and personal attention are accomplished through faculty advising. A special program for parents is available in order to make the transition from high school a smooth and orderly process for students and parents.

In addition, a Mini-Orientation is held on the day preceding the beginning of each new quarter. Students are given information to assist them with registration and regulations governing their academic status.

The Orientation office extends its functions to include assistance and visitation to area high schools, as well as serving students who are visiting the Tech campus.

CREDIT BY EXAMINATION

While students are already benefiting from more rapid degree completion in Louisiana Tech University's year-round quarter system, there are also other avenues through which the eligible student can earn degree credit.

The University subscribes to the concept that individuals possessing knowledge equivalent to that attained in a specific course should be advanced in level in order that a continuous challenge is met. There is no regard for where and how the knowledge was acquired. Certain policies and procedures have been adopted by the University in fulfillment of this philosophy. Unsuccessful attempts will not be recorded against the student. Application of credits toward a degree are determined by the student's curriculum.

The University provides for credit through Military Experience, for Advanced Placement, and for Credit by Examination as follows:

CREDITS THROUGH COLLEGE ENTRANCE EXAMINATION BOARD

A. THE ADVANCED PLACEMENT PROGRAM

The University recognizes college level courses taken in secondary schools under the College Entrance Examination Board (CEEB) Advanced Placement Program. Students who have completed these tests should have their scores sent to the registrar.

B. THE COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

Subject Examinations

A student may gain college credit in a number of subjects by scoring at the percentile level recommended by College Level Examination Program (CLEP), administered nationally by Educational Testing Service (ETS), for the College Entrance Examination Board (CEEB). The examination may be taken Wednesday of the third week of each month at Louisiana Tech University upon application to the Director of the Counseling Center or at any national CLEP center. Registration should be filed 15 working days prior to test date. Scores are provided by ETS through their transcript service. Subjects are being added annually. Lists of subject examinations available may be obtained from the Counseling Center Office, Keeny Hall 313. The student's academic dean must approve the acceptability of the credit toward a degree program.

Credit by means of this type is limited to 30 semester hours and total degree credit by all types of examinations may not exceed 60 semester hours. Applications for CLEP subject examinations may be obtained from any test center participating in the program.

LOUISIANA TECH CREDIT EXAMINATIONS

Credit examinations in many subjects are administered on the campus for the benefit of students.

The procedure for registering for credit by examination is as follows:

1. Students will register for credit by exam for any given course only during regular registration periods. No examination can be taken for credit unless a student has properly registered for the exam. The advisor's signature will render approval for a student to attempt the exam.
2. Exams will be given and reports submitted during the period prior to the final "drop and add" day. Regular University fees will apply.
3. Department heads will have available for the student a class card for "credit by exam" courses to be issued at registration.
4. Each credit exam will have a section number of "00".
5. The student's white registration card will reflect the "credit by exam" courses for which the student registers; these courses will not, however, be added into the total semester-hour load of the student but will be counted for the purpose of determining fees.
6. Should a student attempt an exam and fail it, there will be no entry on his/her permanent record.
7. Successful completion of credit examinations is recorded on the student's record as "credit by examination" and assigned a grade 'S'. Grades of 'S' are not used to compute a grade point average.
8. Credit through this type examination is limited to 30 semester hours of degree credit and credit by all types collectively may not exceed 60 semester hours.

9. Permission to take a credit examination in a given course will be denied a student in the following categories:

- a. Those who have attempted the course for credit previously with an unsatisfactory grade.
- b. Those who have earned credit in a course higher in the same sequence.

SENIOR SPRING TEST DAY

Each spring high school students who have had their American College Test (ACT) scores sent to Louisiana Tech University and who score a composite 25 or better, are invited to come to the campus for testing. The high school scholar has the opportunity of taking the end of the course examinations for English 101, Mathematics 111 (College Algebra), and Mathematics 112 (Trigonometry). Credit is awarded when the student enrolls at Tech.

Students interested in placement in more advanced courses based upon demonstrated aptitude and achievement are advised to consult the departmental section of the catalog dealing with the subject of interest or to consult the department head administering that subject. Advanced Placement merely allows the student to omit a specific course in order to proceed to a more advanced one. No credit is granted for the course omitted, although credit may be gained by examination, and the student is required to add a more advanced course to his/her program of study in order to fulfill requirements for graduation.

MILITARY EXPERIENCE

Honorably discharged veterans of the United States Armed Forces may be allowed credit for physical education upon presentation of a copy of their discharge, DD 214, to the Registrar's Office.

Additional credit may be granted for service schools where equivalence in terms of college courses has been recommended for college credit in the "Guide to the Evaluation of Educational Experience in the Armed Services," published by the American Council on Education. Official documents must be submitted to the Registrar's Office for an evaluation of these experiences.

DEFENSE ACTIVITY FOR NON-TRADITIONAL EDUCATION SUPPORT (DANTES) COURSES

Louisiana Tech University is a participating institution with the DANTES program. Credits earned are recognized by the University in accordance with the recommendations of the American Council on Education. The credits must be acceptable to the curriculum in which the student enrolls and must not duplicate other college credits earned.

REGISTRATION

A student is considered to be officially registered only after all tuition and fees have been paid. No student should attend class until the instructor has received evidence of proper registration from the Office of the Registrar. Registration days are announced in the University Calendar published in this Bulletin and also in the Schedule of Classes each quarter.

Late registration is allowed during the first five regular class days. A late registration fee is assessed during this period.

Department heads or appointed counselors act as advisors during registration; however, the student should be well acquainted with his/her particular curriculum and with any special registration requirements of his/her department or college.

SEMESTER HOUR

Although Louisiana Tech is on a quarter calendar, the unit of credit used by the University is the semester hour. One and

one-fourth hours of recitation each week usually is equal to one semester hour. Two or more periods of laboratory work are normally counted equivalent to one classroom period. Credit for each course is indicated throughout this Bulletin by the numerical description, 0-3-3; first number indicates laboratory contact hours per week; second, lecture periods per week (90 minute periods with a break between classes included); third, credit in semester hours.

COURSE NUMBERS have been standardized. Freshman courses are numbered in the 100 series and senior courses are numbered in the 400 series. In some cases, courses in the 200 series are accepted for junior-senior credit and 300 and 400 courses are accepted for graduate credit. In cases where there is a specified prerequisite of the junior course, or when the course is open to seniors only, or when it is open to seniors and graduate students only, the courses are numbered in the 400 series. Courses numbered 500 are open only to graduate students.

TO AUDIT A COURSE the applicant must be eligible to enter the University either as a regular student, as a visiting student, or as a special student. Permission to audit a physical education activity course must be obtained from the HPE area coordinator. A student auditing one or more classes must follow the regular registration procedure. The student will be assessed the appropriate general registration and tuition fee, which is not refundable. The auditing student is not required to do the work of a regular student; however, a reasonable amount of class attendance is expected if the audited course is to appear on the student's permanent record. An audit may not be changed to credit, or vice versa, after registration closes. Students will not be permitted to take a credit examination on work audited.

TO REPEAT A COURSE in which a passing grade has been earned; the student must have the consent of his/her department head. All courses pursued will be recorded and computed in the overall grade point average. An earned average, which is used only for graduation, is computed by subtracting the hours and quality points earned in all previous attempts in a repeated course from the overall number of hours and quality points.

TO ADD A COURSE after the close of registration approval must be obtained from the student's college dean. No course may be added after the fifth class day of the quarter except forensics, band, choir, chorus, and orchestra. These courses may be added during the first four weeks.

TO DROP A COURSE a student must have the consent of his/her department head or advisor. A student may be dropped from a class, or more than one class, or from the rolls of the University if his/her Dean considers such action to be in the interests of the class or the University. In such a case, the Dean will decide whether the student will be given a 'W' or an 'F.' The 'W' grade is given when a student drops an individual class after the final date for registration has passed and before the end of the first six weeks of a quarter. A student who drops an individual course after the first six weeks of a quarter will receive an 'F' in the course. The deadline for dropping a class with a 'W' grade is listed in the University calendar published in the class schedule each quarter. (See SYSTEM OF GRADING).

TO RESIGN from the University a student obtains a resignation card from the Registrar's Office, obtains the applicable signatures listed in the instructions, and turns in the card, together with the student ID card, to the Registrar's Office. A resignation is not official until the required card is on file in the Office of the Registrar. When a student resigns before the close of registration, the permanent record will reflect only that he/she registered and resigned. When a student resigns during the first six weeks of the quarter, the grades of 'W' will

be assigned. When a resignation occurs between the seventh week and the last week of the quarter, grades assigned are 'W' plus average letter grade at the time of the resignation. A student who resigns during the final week of the quarter will receive grades of 'F'. (See SYSTEM OF GRADING).

TO CHANGE FROM ONE COLLEGE TO ANOTHER, a student must obtain the consent of the Dean of the College in which he/she desires enrollment.

EXPENSES

The printing of a catalog must begin well in advance of the date it will become available for distribution. Past experience has indicated that by the time the catalog is available for distribution, fees and other related fee policies may be changed. For this reason, the dollar costs are not included in the catalog, but are available upon request. Please request a "Fee Schedule" from the Admissions Office, Post Office Box 5226, Tech Station, Ruston, LA 71272.

ACADEMIC REGULATIONS

GENERAL

Change of Address. At the time of registration, each quarter, a student is required to give his/her home address and telephone number, his/her University residence address and telephone number, and University mailing address. If any one of the addresses change during the quarter, the change must be immediately reported, in writing, to the Registrar's Office. The notice of change will be routed from the Registrar's Office to the Dean of Student Life.

The University will consider all correspondence mailed to a student at the address currently on file to have been received, unless it is returned to the sender.

CLASSIFICATION OF STUDENTS

Freshman	1—29 hours
Sophomore	30—59 hours
Junior	60—89 hours
Senior	90 semester hours—Graduation

DEFINITION OF STUDENTS

A Regular Student is one who has satisfied all of the entrance requirements and is qualified to pursue a curriculum leading to a degree and who is pursuing one of the prescribed curricula of the University. (See A High School Graduate in the Admissions section of this bulletin and A Transfer Student listed in this section for additional information on admission to regular student status.)

A Full-Time Undergraduate Student is one enrolled in at least 8 semester hours for the quarter.

A Part-Time Undergraduate Student is one enrolled in less than 8 semester hours for the quarter.

A Special Student (1) has not met Tech's entrance requirements for enrollment in a degree curriculum, but has applied to take selected courses or (2) has met the University's entrance requirements but only wishes to take certain courses rather than pursue a formal curriculum. A special student must have the approval of the Dean of the College in which he/she wishes to register.

A Visiting Student is one who has not been regularly admitted to the University and is not approved to pursue a curriculum. This admission is for a particular program of one quarter in length. No transcripts are required for this admission. Transferable credit will be awarded. If, at a future date, the student wishes to regularly enroll in the University, the regular admission procedures must be followed.

A Transfer Student is one who has previously enrolled at another college or university and is presently pursuing a degree at Louisiana Tech University. Original transcripts from all previously attended post secondary institutions are required. Transfer students will not be admitted to the University if they are under scholastic or disciplinary suspension from another college or university. No transfer student will be considered for admission until such interval has elapsed that had the suspension been incurred at Tech he/she would become eligible. No transfer student will be admitted to the University unless his/her academic record meets the standards required of a student of the same classification at Tech.

All institutions under the Louisiana Board of Trustees for State Colleges and Universities will issue transcripts for a student on scholastic probation or suspension, showing the effective dates of such probation or suspension. Thus Louisiana Tech cannot admit a transfer student from another college or university when that student is on academic suspension.

Transfer credits will normally be accepted from any regionally accredited institution as reported in the current edition of 'Transfer Credit Practices of Designated Educational Institutions' published by the American Association of College Registrars and Admissions Officers (AACRO). Students ordinarily receive no transfer credit for courses designed specifically for technical and vocational career programs. Further application of credit is determined by the appropriate college.

A maximum of 68 semester hours from a junior college may be applied toward a bachelor's degree at Louisiana Tech. Normally, only courses taught at the freshman/sophomore level by Louisiana Tech will be accepted from a junior college toward a degree at Louisiana Tech.

A Post-Baccalaureate Student holds at least one bachelor's degree, but has not been admitted to the Graduate School and is not pursuing any prescribed curriculum. A post-baccalaureate student may not take courses for graduate credit, and any course taken to make up undergraduate deficiencies cannot be later transferred for graduate credit. (A student who holds a bachelor's degree and is pursuing a curriculum leading to another bachelor's degree is an undergraduate regular student and is classified as a senior.)

A Graduate Student holds at least a bachelor's degree from a regionally accredited institution, and has gained admission to the Graduate School.

LOUISIANA STATEWIDE ARTICULATION

Louisiana Tech subscribes to the statewide Articulation Policy as adopted by the Board of Regents. The aim of this policy is to insure that transitions which students may encounter in their educational careers will be orderly. A student transferring to Louisiana Tech will make initial contact with the Office of Admissions for general information. Credits earned from regionally accredited colleges and universities will be accepted by Louisiana Tech. Credits earned from colleges and universities which are not regionally accredited will not normally be accepted. The academic dean of the college offering the curriculum selected will determine which of the transferred credits will actually apply toward completing degree requirements. The transfer student will find information concerning registration, academic regulations, credit by examinations, advanced placement, and other non-traditional means of earning academic credit within the general information section of the catalog.

SEMESTER HOUR LOAD

A NORMAL STUDENT LOAD is that amount of course work required by the curriculum in which the student is registered. A graduating senior or a student having a B average

(3.0) overall (and for the preceding quarter) may be permitted to carry a maximum of 14 hours during a quarter. Correspondence work pursued during these periods will be considered as a part of this load. In all cases where a student wishes to schedule in excess of 12 hours during a quarter or when a student wishes to pursue a course by correspondence, advance approval of his/her academic dean must be obtained. Courses pursued in excess of these limits will be invalidated upon discovery. As for a minimum load, full-time students must be registered for 8 or more hours. (Exception: A graduating senior may carry only the courses required for graduation at the end of the quarter and still be considered a full-time student.)

CLASS ATTENDANCE

Louisiana Tech has adopted CLASS ATTENDANCE regulations in consonance with the policy of the Board of Trustees for State Colleges and Universities.

Minimum Class Attendance Regulations for the Colleges and Universities under the control of the Board:

A. Class attendance is regarded as an obligation as well as a privilege, and all students are expected to attend regularly and punctually all classes in which they are enrolled. Failure to do so may jeopardize a student's scholastic standing and may lead to suspension from the college or university.

B. Each instructor shall keep a permanent attendance record for each class. These records are subject to inspection by appropriate college or university officials.

C. A student shall submit excuses for all class absences to the appropriate instructor within three class days after the student returns to the respective class. The instructor may excuse the student for being absent and shall accept an official university excuse.

D. When a freshman or sophomore student receives excessive unexcused absences (ten percent of the total classes) in any class, the instructor may recommend to the student's academic dean that the student be dropped from the rolls of that class and given an appropriate grade.

E. Faculty members are required to state in writing and explain to the student their expectations in regard to class attendance prior to the close of the drop and add period.

Policy on Emergency Situations Announced through the News Media

It is the basic expectation of Louisiana Tech University that all employees report to their duty stations at the appointed times and students adhere to the class attendance regulations listed above. To aid in determination of "appointed times" this News Media Announcement Policy is promulgated. All normal situations are covered in published calendars, schedules, bulletins, policies and handbooks. Emergency situations will be announced using selected words by the Tech News Bureau, upon authorization by the President or his designee. The following interpretations will apply:

SITUATION: *A. Tech is closed.* INTERPRETATION: Students and most employees are not required to be on duty. Selected employees have responsibility to be on duty to maintain essential services as an inherent requirement of their employment.

SITUATION: *B. Classes are dismissed. All offices are open.* INTERPRETATION: All employees other than 9-month teaching faculty are on duty.

SITUATION: *C. Tech is open.* INTERPRETATION: All employees are on duty, and all students are expected to attend class

EXAMINATIONS

The term EXAMINATION is intended to include all examinations, regular and special, taken while the student is studying at Louisiana Tech. Any student who violates any of the regulations listed below may be denied credit by the University.

(1) Special examinations, including postponed examinations, must be taken within the first four weeks of the following quarter. If a student does not re-enroll the following quarter, the deadline to take the examination is still within the first four weeks of the following quarter. If the student does not take the examination during the period specified above, a grade of 'F' will be entered on the student's permanent academic record.

(2) A candidate for graduation who fails to pass the final examination in only one course during the last quarter's work may be permitted to take a 'deficiency examination' in this course. If the student fails the 'deficiency examination,' the course must be repeated.

SYSTEM OF GRADING

The University's SYSTEM OF GRADING is traditional: A grade of 'A' is given for the highest degree of excellence that is reasonable to expect of students of exceptional ability and application. A grade of 'B' is superior. A grade of 'C' is average. A grade of 'D' is given for a quality of work that is considered the minimum for receiving credit for the course. A grade of 'S' indicates satisfactory completion of the course. The 'S' grade increases hours earned but does not effect hours pursued or quality points. A grade of 'F' is given for a failure and the work must be repeated to receive credit.

Some other grades given by the University need more explanation. The grade 'I', plus the average letter grade on all the work completed, is used to denote failure to complete assigned class work because of conditions beyond the student's control. It is the responsibility of the student to request that a grade of 'I' be issued. If the student's work is of passing quality the instructor may assign a grade of 'I' plus the average letter grade on all work completed. A grade of 'F' cannot be issued. If the grade 'I' has not been removed by the end of the fourth week of the following quarter, a grade of 'F' will be recorded, except on graduate research or thesis courses numbered 551, 590, and Education 580. A student may be placed on probation, continued on probation, or removed from probation at the time the 'I' grade is cleared.

A 'W' is given when a student drops a class or resigns from all classes after the final date for registration has passed and before the end of the first six weeks of a quarter. The 'W' grade is not included in computing the student's average. However, if a student resigns from school after the first six weeks, the instructor will submit grades of 'W' plus the student's average letter grade at the time of withdrawal. If the student resigns within one week of the end of classes he/she will receive a grade of 'F.' These grades (W plus average) will be recorded on the student's permanent record but will only be included in the computation of the average when the student is being considered for probation or suspension for that quarter. The grade 'NC' denotes no credit earned or hours charged and is not computed in any average.

Grade reports are sent at the end of each quarter, by the Registrar, to the home address provided by the student.

Quality points indicate the quality of a student's work. A grade of 'A' receives four quality points per semester hour; a grade of 'B' receives three quality points per semester hour; a grade of 'C' receives two quality points per semester hour; a grade of 'D' receives one quality point per semester hour. A grade of 'F' receives no quality points. A student, wishing to increase quality points, may, with the consent of the head of his/her department, repeat a course in which a passing grade has been earned. (See "Graduation Requirements" and

"Scholastic Standards" for an explanation of the method by which quality points are used in determining averages for graduation and for probation and suspension.) The scholastic standing of a student (or of any group of students) is determined by using the number of semester hours of academic work for which the student or group pursued.

FINAL GRADE AND ACADEMIC APPEALS PROCEDURE

A final grade in a course represents the cumulative evaluation and judgment of the faculty member placed in charge of that course. If a student feels the final grade or an academic decision in a course was not determined in accordance with university policies or was determined arbitrarily, the student may appeal by adhering to the following procedure.

(1) Confer with the faculty member, setting forth clearly all points of concern. If unsatisfied with the results of the conference, then

(2) Confer with the head of the department in which the course is taught, setting forth clearly all points of concern. If the student remains unsatisfied, then

(3) Write a letter of appeal to the dean of the college in which the course is taught. The dean will send copies of the letter to the faculty member and department head. This letter must: (a) be received by the dean within the first ten (10) regularly scheduled class meeting days of the term immediately following the term in which the appealed grade was received and (b) be an accurate and complete statement of all facts pertaining to the matter. Falsification may result in disciplinary action.

The dean may make a decision, which would be final in the matter, or refer the appeal to the college's committee on standards for review and recommendation. The committee's report would be a recommendation to the dean, whose decision would be final.

In reviewing the appeals both the dean and committee would have broad latitude in their procedures and recommendations. They might, for example, request additional information privately from those involved. Or they might choose to invite specified persons, including the student and faculty member, to a meeting to discuss the matter. Whatever their approach, it should take appropriate account of the interests of both the student and faculty member.

In the case where a grade penalty is given to a student because of academic misconduct, the student has the right to appeal the grade penalty as well as the charge of academic misconduct in accordance with the grade and academic appeals procedure.

In all cases the dean shall communicate the final decision to the student, faculty member, department head, and, if a grade change is involved, to the registrar. In appeals where the dean initially makes the decision, the decision should normally be communicated within ten (10) class days after the appeal deadline. When appeals are referred to the committee, the final decision should normally be communicated by the dean within twenty (20) class days after the appeal deadline.

ACADEMIC ACHIEVEMENT

OUTSTANDING ACADEMIC ACHIEVEMENT of an undergraduate student receiving his/her first baccalaureate degree shall be recognized by the University. The student is honored at graduation by a suitable inscription on the diploma and by recognition by his/her Dean. The following conditions determine such recognition: (A) An average on all hours pursued of 3.30 for cum laude, 3.55 for magna cum laude, and 3.80 for summa cum laude; (B) the student must have earned a total of 30 semester hours at Louisiana Tech University.

Students receiving his/her first associate degree are also recognized for outstanding academic achievement. The following conditions determine such recognition: (A) An average on all hours pursued of 3.30 for 'Honors,' and 3.70 and above for 'Distinction;' (B) the student must have earned a total of 15 semester hours at Louisiana Tech University.

The PRESIDENT'S HONOR LIST is for undergraduate students with an outstanding grade point average for a given quarter. The requirements are: (A) a grade point average of at least 3.8, (B) a minimum of ten semester hours pursued, (C) no grade lower than a 'C.'

The DEAN'S HONOR LISTS are prepared at the end of each quarter. Undergraduate students to be eligible must be regularly enrolled with a grade point average of at least 3.5 on a minimum of ten hours pursued with no grade lower than a 'D.' The Dean of each College determines the students who will be honored on these lists.

TRANSCRIPTS

The official permanent academic records for all Tech students are in the custody of the Office of the Registrar. Release of these records are protected by the 'Family Educational Rights and Privacy Act.' Transcripts of the academic record may be secured by the individual personally, or will be released on the student's written authorization. Transcripts cannot be issued until the student or former student has settled all financial obligations to the University and has submitted all required transcripts from other colleges attended.

SCHOLASTIC STANDARDS

SCHOLASTIC PROBATION, SUSPENSION, AND READMISSION are determined by the following regulations:

(1) A full- or part-time student who does not make a 'D' average (1.0) on all hours pursued during a quarter will be suspended for one quarter (except a freshman student, who during his/her first two quarters will be placed on probation or continued probation).

(2) A full- or part-time student who makes an average ranging from 1.0 to 1.5 on all hours pursued during a quarter will be placed on probation.

(3) A student on probation will be given one quarter to make a 'C' average (2.0) on all hours pursued during that quarter which will remove him/her from probation; if he/she does not make a 2.0 average, he/she will be suspended for one quarter.

(4) After the lapse of one quarter, a student may re-enter the University on probation, but he/she must make a 'C' average (2.0) on all hours pursued during the quarter or he/she will be suspended again.

(5) A student who resigns after six weeks of a quarter will receive at the time of withdrawal grades of 'W' plus the grade he/she was making at the time of withdrawal. These grades will be used to compute his/her academic status for the current quarter but will not be computed in the permanent average.

(6) A student suspended from Louisiana Tech University at the end of the Spring quarter may attend the Summer quarter, but he/she must remain out during the Fall quarter. Grades earned during a Summer quarter at Louisiana Tech University do not change the probational or suspension status of a student.

(7) A student, after having been suspended the fourth time, may be allowed to appeal his/her case for readmittance for one more and final time, provided there has been a lapse of a reasonable period of time since the fourth suspension.

(8) A student under suspension for scholastic reasons may not obtain credit toward a degree on credits earned at another

institution during the period when he/she is ineligible to register in an institution under the jurisdiction of the Board of Trustees for State Colleges and Universities.

READMISSION AFTER SUSPENSION is permissible under the following circumstances:

(A) Any student suspended for scholastic deficiencies may not re-enroll until the expiration of one quarter. Upon readmission after suspension, he/she will be placed on probation and required to meet academic standards required of all probationary students. If a student has been suspended for scholastic deficiencies the third time and fails to earn a 'C' average on all work pursued during the quarter following readmission, he/she will be temporarily removed from the rolls of any institution under the jurisdiction of the State Board of Trustees until the lapse of a reasonable period of time.

(B) A student under suspension for scholastic reasons will be on probation upon return to the University.

APPEAL of decisions concerning suspension may be made to the student's respective academic dean.

ACADEMIC MISCONDUCT at the University is determined by the faculty member under whom such misconduct occurs. The penalty for cheating and other forms of misconduct is also determined by the faculty member. This penalty may be an 'F' in the course, but lesser penalties may be given at the discretion of the faculty member. The student has the right to appeal the charge of academic misconduct in accordance with the Final Grade and Appeals Procedure.

RESIGNATIONS FROM THE UNIVERSITY

Any student who wishes TO RESIGN FROM THE UNIVERSITY for any reason must follow the proper resignation procedures ending in the Office of the Registrar. A grade of 'F' for each course will be entered on the record of any student who leaves without proper resignation. A student living in the dormitories or housing who leaves without proper resignation will forfeit the unused portion of any payment or deposit made to the University.

MAJORS

Majors in numerous disciplines have been authorized for Louisiana Tech which lead to the granting of two associate degrees, five baccalaureate degrees and nine graduate degrees.

The associate degrees are: Associate of General Studies, and Associate of Science (in Business Technology, Food Service Supervision, Instrumentation Technology, Land Surveying Technology, Medical Record Technology, Nursing, Petroleum Technology, and Secretarial Curriculum).

The baccalaureate degrees are: Bachelor of Architecture, Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Science, and Bachelor of General Studies.

The graduate degrees are: Master of Arts (in Art Education, Counseling and Guidance, Elementary Education, English, English Education, History, Human Relations and Supervision, Music Education, Reading, Social Studies Education, Special Education, Speech, Speech Education, Speech Pathology and Audiology, and Speech Pathology and Audiology Education); Master of Business Administration (General and specialties in Accounting, Business Education, Economics, Finance, Management, Marketing and Quantitative Analysis); Master of Fine Arts; Master of Professional Accountancy; Master of Science (in Business Education, Chemistry, Computer Science, Engineering, General Home Economics, Geology, Health and Physical Education, Home Economics Education, Institution Management, Life Sciences, Mathematics, Mathematics Education, Physics, and Science Education); Specialist in Education; Doctor of Business Administration;

Doctor of Philosophy in Biomedical Engineering; and Doctor of Engineering.

MINORS

Minors are available to students in certain areas of the University curricula. General guidelines in obtaining a minor are as follows:

1. A minor shall consist of a minimum of 21 hours of course work and a minimum of 40 to 60 percent of the courses shall be in the 300 to 400 level.

2. If the required courses are not presented in the catalog then the student's advisor will consult with the department head in which the minor is desired and agree upon the number of hours and course content of the minor.

3. The minor will be determined at the beginning of the student's junior year (completed 60 hours) at which time a plan of study will be submitted by the student's advisor to the department in which the minor is to be taken.

4. A student may acquire a double major and one baccalaureate degree by completing the total hours required for one degree and the total hours required in the subject (major) courses for the second degree.

5. A student may complete a second minor by completing the required hours listed in the catalog or agreed to by the student's advisor and the Department Head in which the minor is to be taken.

6. An area of concentration is classed as the area in which the major portion of the student's studies are concentrated.

7. Supporting courses are those in which a student will obtain background information in the major area of study. These courses may be called prerequisites in some cases.

GRADUATION REQUIREMENTS

GRADUATION REQUIREMENTS for the Associate and Baccalaureate degrees are as follows:

Associate Degree Requirements

The Associate of General Studies or Bachelor of Science degrees can be earned from Louisiana Tech University when a student has fulfilled the following requirements:

1. The candidate must complete one of the approved two-year programs consisting of 60 or more specified academic credit hours in the Basic and Career Studies Division.

2. He/she must make a C average on hours earned. If a student is short on hours earned at the beginning of the final quarter or is more than six quality point short of a C average he/she will not be allowed to register for graduation. A transfer student must also make a C average on all hours earned at the University.

3. If the student is a transfer he/she must not have less than 24 weeks in residence at Louisiana Tech, during which at least 15 hours and 30 quality points, have been earned.

4. The last two quarters must be spent in residence. Exception: A student who has fulfilled the minimum residence requirements may be permitted to earn six of the last 18 hours out of residence.

5. He/she must report his/her candidacy to his/her Dean and the Registrar and register for graduation within the first three weeks of the quarter in which he/she expects to graduate.

6. One-fourth of the hours required for graduation must be completed in residence. Louisiana Tech does not permit a student to apply for more than six hours of correspondence study toward the pursuit of a degree.

The student must be registered at Louisiana Tech University.

If a student wishes to add an associate degree as a second degree in another field of study at the University, at least 15 semester hours in addition to the number needed for the first degree is required. If a student completes requirements for an associate degree as he/she progresses toward a bachelor's degree, then no additional hours are required, providing specific requirements are satisfied for both degrees.

If a student wishes to earn a baccalaureate degree from the University he/she must re-apply for a baccalaureate program and meet all additional requirements as explained in each specific curriculum.

Baccalaureate Degree Requirements:

1. The candidate must complete one of the curricula of the six colleges.

2. A 'C' average on hours earned is required. A student who is short on an hours earned basis of more than nine quality points of a 'C' average will not be allowed to register for graduation. A transfer student must also make a 'C' average on all hours earned at the University.

3. If he/she is a transfer student, not less than 36 weeks residence at Louisiana Tech, is required during which at least 30 semester hours and 60 quality points are earned.

4. He/she must spend the senior year in residence. Exception: A student who has fulfilled the minimum residence requirements may be permitted to earn 9 of the last 36 semester hours out of residence.

5. The student must report his/her candidacy to his/her Dean and to the Registrar within the first three weeks of the quarter in which he/she expects to graduate.

6. Three-fourths of the hours required for graduation must have been completed in college residence. Louisiana Tech does not permit a student to apply for more than six hours of correspondence study toward the pursuit of a degree.

ADDITIONAL INFORMATION FOR ALL DEGREE CANDIDATES

The student must be registered at Louisiana Tech University.

The student must be present for commencement. If a candidate is absent from commencement without the approval of the President of the University, an absentee fee of \$10.00 will be assessed and an additional \$3.00 Special handling fee for mailing will be charged each person who does not pick up the diploma at graduation when it is normally available.

It is highly recommended that the candidate register in the Placement Office during the quarter preceding the one in which he/she expects to graduate.

If the student wishes to earn a second baccalaureate degree in another field of study at the University, at least 30 semester hours in addition to the number required for the first degree must be earned. These 30 additional hours need not have been completed after the first degree was awarded, but the total hours earned must be the number required for the first bachelor's, plus 30 more. In addition, the student must satisfy the requirements for the second degree. (Also see Majors and Minors).

Graduate Degree Requirements:

For specific degree requirements see the Graduate School Section of the catalog.

DIVISION OF STUDENT AFFAIRS

The Division of Student Affairs is organized for the purpose of assisting students to determine self direction and personal goals, and to encourage development of skills for the satisfactory attainment of those goals. For this purpose the services of the division are many and varied with emphasis on the individual student.

Thus, any prospective Tech student should become familiar with the services of the Division of Student Affairs: housing for all students; counseling center; placement and alumni services; intramural program; commuter's lounge; vehicle registration; student conduct; student activities and student organizations.

"Visiting" students (see Inter-Institutional Cooperative Programs, page 26) will receive services from the Division of Student Affairs in the home institution, the institution where admissions requirements have been met and degree programs are being pursued.

NOTICE: The regulations contained in this bulletin are based upon present and foreseen conditions and the University reserves the right to modify any statement in accordance with unforeseen conditions.

OFF-CAMPUS APPLICATION REQUIREMENTS

The Board of Trustees for State Colleges and Universities, State of Louisiana has adopted resolutions affecting the housing policy at Louisiana Tech University and all of the other colleges and universities under its jurisdiction. In compliance with the Board of Trustees resolutions, Louisiana Tech has adopted the following on-campus residency requirement: **ALL UNMARRIED FULL-TIME UNDERGRADUATE STUDENTS, REGARDLESS OF AGE OR WHETHER OR NOT EMANCIPATED, EXCEPT THOSE LIVING WITH PARENTS, ARE REQUIRED TO LIVE IN ON-CAMPUS RESIDENCE HALLS AS LONG AS SPACE IS AVAILABLE.**

The resolutions further define the on-campus residency requirement to include a framework within which the colleges and universities may grant exemptions to the general regulation according to the unique academic character, academic traditions, objectives and special qualities of each institution, keeping in mind the total objectives of higher education in the State of Louisiana. The philosophy of higher education in the State of Louisiana includes, in addition to the basic and primary educational pursuits, additional enrichment afforded by student life facilities and programs, all of which form an integral part of the total educational experience of the student.

In order to be fair and consistent in granting exemptions from the on-campus residency requirement, **ALL UNMARRIED FULL-TIME UNDERGRADUATE STUDENTS, REGARDLESS OF AGE OR WHETHER OR NOT EMANCIPATED, EXCEPT THOSE LIVING WITH PARENTS WILL BE REQUIRED TO MAKE APPLICATION IF THEY WISH TO BE CONSIDERED FOR AN EXEMPTION.**

Applications for exemption to the on-campus residence requirement must be made in writing to the Dean of Student Life no later than two (2) weeks prior to the opening of the quarter. The student will be notified in writing by the Dean of Student Life of the decision rendered by the Committee. (Forms are available in the office of the Student Life Office.) Any student who has applied for and been denied an exemption to the on-campus residence requirement shall have the right to appeal such decision of Proper Officials in accordance with the provisions and administrative procedures for appeal authorized and established pursuant to the authority of Act 59 of 1969 (L.R.S. 17:3101) and the rules of procedure of the State Board supplemental thereto.

If the residence halls are full, exemptions to the requirement of on-campus residence hall living may be made according to the following priority:

1. First, undergraduate students who wish to live with a close relative, defined as grandparents, married brother or married sister.
2. Second, undergraduate students who wish to live in social fraternity houses.
3. Third, Seniors.

4. Fourth, Juniors.

5. Fifth, Sophomores.

6. Sixth, Freshmen.

Within each of the foregoing classifications, the following additional rules of priority shall be applied:

1. First, students who have resided in off-campus housing the longest period of time.

2. Second, date application was received.

In addition, an exemption may be applied for in a hardship case or by older student.

DEFINITIONS: The following words and phrases, in the absence of clearer indications, will be given the following interpretations:

"Living with parent" means any place of abode owned, rented or leased and OCCUPIED by the parent.

"Living with close relatives" means any place of abode owned, rented or leased and OCCUPIED by the grandparent, married brother or married sister.

"Living in social fraternity houses" means living in any house owned, rented or leased by a University chartered social fraternity.

"Senior" means an undergraduate student who has earned a minimum of 90 semester hours and 180 quality points.

"Junior" means an undergraduate student who has earned a minimum of 60 semester hours and 120 quality points.

"Sophomore" means an undergraduate student who has earned a minimum of 30 semester hours and 60 quality points.

"Freshman" means an undergraduate student who has not yet earned 30 semester hours and 60 quality points of college credit.

"Students who have resided in off-campus housing for the longest period of time" means the student who has lived off campus for the most quarters, other than with parents.

"Date application was received" means recording the date the applications for exemption are received in the office of the Vice President for Student Affairs. (Letters received on the same date will place individuals on the list in an alphabetical order.)

"Hardship case" means a person who will suffer significant hardship because of valid financial, medical, or other good and sound reasons. (Special diets are available in on-campus dining facilities.)

"Older student" means a person where a determination of fact that such individual is, by virtue of age and experience, incompatible with the residence hall age group.

Students found violating the policy as stated in the above paragraphs under the heading "HOUSING," will be required to move into the residence hall system and pay full room rent and associated fees for the quarter in which the violation occurred. Should the student refuse to move into the residence hall and pay the rent, the student will be referred to the Behavioral Standards Committee.

RESIDENCE HALL RESERVATIONS

Room reservation contracts may be secured at the office of the Director of Housing. Applications for residence hall reservations will be accepted beginning October 1 of each year for the following Winter, Spring, Summer, and Fall quarters. Reservation contracts will not be confirmed until the following have been submitted to the Housing Office of the University: (1) Completed residence hall reservation contract with picture of applicant attached, and (2) a \$50.00 reservation deposit. (All residence hall students are required to pay for room and meals.)

RESIDENCE HALL ACCOMMODATIONS

Specific room assignments for new Tech students are made according to the date the completed residence hall room contracts for the student and his/her roommate requests, if any, are received. Returning students presently living in the residence halls are assigned on a first-come basis, at a time set aside for this during a quarter.

TERMS UNDER WHICH RESIDENCE HALL ROOMS ARE CONTRACTED

The University reserves all rights in connection with room assignments or termination of their occupancy. Occupants of residence hall rooms are held liable for damage to the University property within the room, the building, and all other University property they use or to which they have access.

The reservation deposit will be refunded upon request not later than 45 days before the beginning date (date specified in catalog) of the quarter for which reservation was made. Failure to cancel a reservation before the 45-day period or failure to claim the room by 5:00 p.m. the day before late registration begins will cause forfeiture of reservation deposit.

The student who does not plan to return to the residence hall the next quarter must claim the deposit by the close of the present quarter. If the student is leaving the residence hall and wishes to leave the deposit on file in order to return to the residence hall at a later date, he/she must fill out a reservation card in the Housing Office by the close of the present quarter, stating the date he/she wishes to return. If the student does neither, the deposit will be forfeited.

The student who is suspended from the University for academic reasons will be given 30 days from the beginning of the first quarter immediately following the quarter in which the suspension occurred to request a refund of the deposit or fill out a new reservation card in the Housing Office stating the date he/she plans to return. If the student does neither, the deposit will be forfeited.

The student who leaves the residence hall system under authorization of the University, and in compliance with University rules and regulations, and remains in school will forfeit the unexpended portion of room payment (rent) for the quarter. The \$50.00 reservation deposit, less any charges for damages, will be refunded upon the proper conclusion of the use of the room and completion of an official check-out from the residence hall system. "Official check-out" and "conclusion of the use of a room" are defined as having moved all personal effects out of the room and completely processed a check-out slip through the Housing Office and processed a move-out form through the Comptroller's Office. A student is considered living in the residence hall room until he/she has officially checked out of the residence hall system, concluded the use of the room, and completed the processing of the move-out form with the Comptroller's Office. A student will continue to pay for room rent and meals until all official check-out procedures are completed. The student may continue to use the food service, if so desired. To do so, the student must notify the cashier in the Comptroller's Office of this decision when processing the move-out form. If the student does not wish to continue using the food service, the unexpended portion of payment for the pay period involved will be forfeited.

The student whose relationship with Louisiana Tech is severed (for whatever reason) during a quarter or term of enrollment will forfeit the reservation deposit and pay for (1) the services rendered the student in the residence hall and food service on a daily basis, and (2) any charges placed against the student's matriculation such as library fines, breakage, etc. The balance of funds prepaid by the student for these services will be refunded.

All penalties and charges incurred during a quarter must be paid at the cashier's window in the Comptroller's Office before the end of the quarter that charge(s) was incurred, or charges will be held against the student's record and the student cannot register.

Refrigerators may be rented by residence hall students from Louisiana Tech Housing Office at a rate of \$15.00 per quarter with special rates if rented for more than two quarters.

CHANGE OF ROOM RENT RATES MAY OCCUR WITHOUT NOTICE

MARRIED STUDENT HOUSING

The University owns 42 apartments located on the campus of the College of Life Sciences, approximately a mile from the main campus off U.S. Highway 80 West.

Applications for Married Student Housing are available from the Housing Office, Louisiana Tech University, Ruston, LA, 71272. These applications must be accompanied by a \$50.00 damage deposit and will be handled on a first-come, first-served basis. The deposit will be refunded when the apartment is vacated if there has been no damage to the apartment and the contract agreements are fulfilled. No assignments can be made until the \$50.00 deposit is received. If the applicant wishes to reject the assignment, it must be done 45 days before the quarter begins (date specified in catalog) or he/she will forfeit the deposit. Rent is as follows: One hundred and eighty-five dollars. (\$185.00) per month payable in advance, plus cost of electrical power; the first rent payment being due the date the key to the apartment is issued. Payments thereafter are due on the first of each calendar month. Students are expected to accept the responsibility of making payments promptly; therefore, the school will not send a statement to the student of a payment due. Failure to pay in advance subjects the student to these penalties: Dismissal from the apartment, the University, or both. Non-students are not eligible to live in University owned apartments. Except for a heater, these apartments are unfurnished.

CHANGE OF APARTMENT RENT MAY OCCUR WITHOUT NOTICE

INTERNATIONAL STUDENTS

The International Student Advisor's office provides the following assistance to international students:

1. Orientation to his/her new environment,
2. personal and academic counseling,
3. information about the culture and services of the new community, and
4. referrals for problems encountered.

The International Student Advisor will answer questions concerning immigration procedures which affect international students and coordinates international student activities and cross-cultural programs.

The Office of the International Student Advisor is located in Room 320, Keeny Hall.

FIRST AID CENTER

A First Aid Center is maintained by the University for use by all students. A Registered Nurse is on duty during the school day, Monday through Friday, during official school sessions. First aid services, within the limits of personnel and supplies which can be maintained in the Center, are provided to students at no charge other than the fee during registration. Medical expenses for services incurred outside the Center are the responsibility of the student.

ACCIDENT AND HOSPITALIZATION INSURANCE

Accident and hospitalization insurance including a \$25.00 maximum emergency room sickness coverage is provided to students through the Student Government Association by self-assessment paid at the time of registration. Details are provided in a flyer distributed at registration by SGA.

COUNSELING CENTER SERVICES

The Counseling Center is a service provided for the students of the University. The Center believes in the worth, dignity, and potentiality of each individual and strives to help young adults become aware of these qualities within themselves. The Center endeavors to aid students in gaining more of the insight, learnings, and skills needed to cope intelligently and effectively with each phase of their lives. Counselors assist students in three major areas: Personal Counseling, Educational Counseling, and Career Counseling. These areas include such concerns as personal emotional adjustments, stress management, health awareness, dating, marriage, home relationships, social relations, adjustments to college work, study skills, and plans for the future. Counseling is done in an atmosphere in which students may discuss problems freely and confidentially. The Center is located in 310 Keeny Hall.

PLACEMENT AND ALUMNI SERVICES

Placement and Alumni Services are provided to supplement and coordinate the programs of the various academic deans. Degree candidates provide data on their qualifications and occupational preferences so that they may be given help in securing the employment for which they are best equipped. Academic achievements and evaluations provided by faculty references are added to a confidential, cumulative file. The Placement Office also arranges interviews and acquaints students with various employment opportunities.

VEHICLE REGISTRATION

The University requires all faculty, staff, students and employees who are in any way connected with the school to register their vehicle regardless of ownership and to secure and properly display a parking permit. All vehicles must be registered by the time classes begin for any quarter. Also, vehicles that are purchased or acquired during the quarter must be registered before parking on the campus. Only one vehicle may be registered per student or employee.

Vehicles may be registered and decals obtained in the Campus Police Office, located in Tolliver Hall, during regular office hours.

Each registrant will need to present a valid driver's license and vehicle registration certificate. (Additional information may be found in the pamphlet "Louisiana Tech Vehicle Regulations.")

STUDENT CONDUCT

Generally speaking, students at Louisiana Tech are expected to conduct themselves in a manner that will not bring discredit but honor to themselves and the institution. Minimal standards of conduct are set out in the pamphlet entitled "Code of Student Rights, Responsibilities, and Behavior." Each student is required to become acquainted with the contents of this pamphlet.

A student under suspension or expulsion for non-academic reasons may not obtain credit toward a degree on credits earned at another institution during the period of ineligibility to register at Louisiana Tech.

STUDENT ACTIVITIES AND ORGANIZATIONS

Student activities and organizations are so numerous and diverse that it is impossible to list them here. University students are encouraged to find time for extra-curricular activities because they encompass a development toward a balanced maturity. The faculty advises and assists in these activities.

A Handbook for Student Organizations is provided each organization. Copies may be obtained in the office of the Dean of Student Life.

STUDENT FINANCIAL AID

Louisiana Tech provides equal educational opportunities for all students and this policy of equal opportunity is fully implemented in all programs of financial aid available to assist students to obtain an education at Louisiana Tech.

An extensive Financial Aid program encompassing employment, loans, grants, and scholarships is available to assist deserving students. Need, skills, and academic performance are carefully weighed to develop a "package" aid program for each individual.

Employment is available in a wide variety of forms to the student who is willing to work. Work in clerical capacities, maintenance, food service, laboratories, library, dormitories, and other areas provides educational and training opportunities as well as profitable remuneration. Pay rates are commensurate with the skill and experience required. Work is limited to avoid interference with academic pursuits. The University participates in the College Work-Study Program designed to assist students with a need for financial assistance.

The student is advised to make inquiries at the Office of Student Financial Aid in person or by writing to the office at P. O. Box 7925, Tech Station, Ruston, Louisiana 71272.

Students must meet the requirements for "satisfactory progress" in order to be eligible for participation in the federally-supported programs of student financial aid at Louisiana Tech University. Questions pertaining to what constitutes "satisfactory progress" should be directed to the student financial aid office at Louisiana Tech. The criteria for "good standing" and "satisfactory progress" and the consequences of failure to meet them successfully are applicable to the financial aid programs in a different fashion from regulations governing academic probation and suspension. Federal regulations frequently mandate amendments to established policies; consequently, financial aid participants (and potential participants) would be well-advised to maintain close liaison with the financial aid office regarding these requirements.

Loans of the following types are available to eligible students:

NATIONAL DIRECT STUDENT LOAN PROGRAM

These are loans of a long term nature, with a legal maximum that an undergraduate student may borrow up to a maximum of \$6,000 for an undergraduate career. A graduate student may borrow up to an aggregate for all years of \$12,000. A borrower has a six-month "period of grace" after he/she ceases to be enrolled as at least a half-time student in the University before payment must begin.

GUARANTEED STUDENT LOAN PROGRAM The State of Louisiana guarantees loans for students who meet certain academic qualifications. Loans are made up to \$2,500 for the academic year for undergraduates and \$5,000 for graduate students.

After a student's application has been processed by the office of Student Financial Aid, the student then negotiates with a bank, credit union or savings and loan association usually in their home town area. If the lender agrees to participate, the loan is guaranteed by the Governor's Special Commission on

Education Services. Interest charges to the student and repayments begin after the student leaves school either upon graduation or for some other reason, or when the student is no longer at least a half-time student.

Students from states other than Louisiana should check with the same types of agencies and offices for information on the Guaranteed Loan Program available in their particular state.

To apply, a student should contact the Financial Aid Office at Louisiana Tech for the Governor's Special Commission on Education Services loan application form. Out-of-state students should contact the guarantee agency in their state or the lending institution from which they will seek the loan for the appropriate application which should then be submitted to the Financial Aid Office at Louisiana Tech.

PLUS LOANS

PLUS loans are meant to provide additional funds for educational expenses. The interest rate for these loans is 12 percent. Like Guaranteed Student Loans, they are made by a lender such as a bank, credit union, or savings and loan association.

Parents may borrow up to \$3,000 per year, to a total of \$15,000 for each child who is enrolled at least half-time and is a dependent undergraduate student.

Graduate students may borrow up to \$3,000 per year to a total of \$15,000. This amount is in addition to the Guaranteed Student Loan limits.

Independent undergraduates may borrow up to \$2,500 per year. However, the PLUS loan, combined with any Guaranteed Student Loan the undergraduate may also have, cannot exceed the yearly and total Guaranteed Student Loan undergraduate limits (\$2,500 and \$12,500).

VOCATIONAL REHABILITATION GRANTS

Vocational Rehabilitation is a public service program for physically and mentally handicapped individuals. To be eligible, a person must have a permanent disability which constitutes a job handicap. The disability may be of varying degrees, it may affect only a part or parts of the applicant's body and it may have come about at birth or at any time during the applicant's life. Students with disabilities are advised to contact the Department of Vocational Rehabilitation in their districts for a consideration of their cases.

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT

This grant is a federal aid program that provides assistance for students with financial need. The grants may not exceed \$2,000. Grants are available to any undergraduate student with financial need who is attending at least halftime and progressing normally toward a degree to the extent that funds are available. They are not restricted to students who are expected to, or who actually do, maintain strong academic averages.

PELL GRANT

Authorized under the 1972 Higher Education Act this program provides for grants to students for each of a student's undergraduate years until the first baccalaureate degree is obtained. Applications are available through high school counselors and the financial aid office at Louisiana Tech.

LOUISIANA STATE STUDENT INCENTIVE GRANT PROGRAM

This program is a joint effort of the federal government and the State of Louisiana. The grants are available to persons who are bona fide residents of Louisiana and U.S. citizens. Awards will be made only to full time students who meet the academic requirements and who have substantial financial need. Applicants must present the Report received from the Pell Grant Program office to be considered for this grant program. Current regulations provide for annual awards ranging from \$200 to \$1500.

VETERANS' ORPHANS SCHOLARSHIPS

Awarded to sons and daughters of deceased war veterans. Apply to the Department of Veterans' Affairs in your district.

GRADUATE RESIDENTSHIPS

Graduate Residentships are positions appointed by the Director of Housing for graduate students serving as hall directors in both men's and women's residence halls. Applicants may be married or single. There are limited positions available for summer. The applicant must be enrolled in the School of Graduate Studies and agree to register for not more than 6 hours of course work each quarter. Responsibilities include residence hall staff supervision, program implementation, and coordination of hall administration. Additional information and application forms can be obtained from the Department of Housing, Louisiana Tech.

ACADEMIC SCHOLARSHIPS

At Louisiana Tech University there is a General Scholarship Program; and, in addition, each of the six colleges (Administration and Business, Arts and Sciences, Education, Engineering, Home Economics, and Life Sciences, plus the Division of Admissions, Basic and Career Studies) has its own scholarship program.

The General Scholarship Program, administered through the Division of Student Financial Aid includes the following academic scholarships: Louisiana Board of Trustees, Greater Tech Foundation, Tech Alumni, McGee Memorial Scholarship, Outstanding Student Scholarships, and Century Telephone Enterprise Scholarships. Students interested in applying should contact the Director of the Division of Student Financial Aid.

Scholarships are limited in number. They divide into categories:

Academic Scholarships such as the above, which are awarded on the basis of demonstrated ability—usually without regard to need.

Grant-in-aid and Service Awards. Frequently these are awarded on the basis of special skills and require the student to render a service to the University. Included in this category are scholarships in athletics, music, band, and some academic department awards.

The Air Force Reserve Officer's Training Corps program offers a number of competitive scholarships to both men and women participants. These include payment of all tuition and fees, a per quarter allowance for textbooks, and a \$100 per month tax free cash allowance.

AUXILIARY PROGRAMS AND FACILITIES

ADVANCED LEARNING CENTER

This Center was organized in 1976 to assist academic departments in the development and implementation of instructional materials on the computer. These materials touch all segments of the campus from classroom presentations in elementary education to analysis of laboratory data in physics and engineering.

The Advanced Learning Center supports the goal of improving computer knowledge throughout the campus. Thus it promotes computer usage in nonscientific areas as well as the traditionally heavy user groups. In many cases the student accesses the computer by dialing up the campus computer center from terminals located in the departments. In short, the activities are designed for maximum student convenience with emphasis on enjoyable learning.

ATHLETICS

A member of the National Collegiate Athletic Association since 1951, the University is also a member of the Southland Conference which it joined at the beginning of the 1971-72 year. Tech competes in eight different men's sports including football, basketball, baseball, outdoor track, indoor track, cross country, golf, and tennis.

The women's athletic program includes varsity basketball, tennis, softball, and cross country.

The University's first priority in athletics is to produce a well-rounded program with excellence in all areas. All sports are Division I, the highest NCAA classification.

Eligibility for intercollegiate competitors in the men's sports is determined by the rules and regulations established by the conference, the NCAA and by the State of Louisiana. The women's sports are governed by the rules and regulations of the NCAA and the State of Louisiana.

Tech is especially proud of its athletic complex which includes a 23,000-seat football stadium, 9-lane lighted tartan track, 10 lighted tennis courts, a 2,000-seat lighted baseball stadium, and a new 8,000 seat basketball facility, the 17 million dollar Samuel M. Thomas Assembly Center, and a recently constructed ladies softball stadium.

BARKSDALE PROGRAM

Louisiana Tech has offered an on-base degree program at Barksdale Air Force Base since September 1965. The program is designed for Air Force personnel whose military assignments make it impractical for them to earn college credit and complete a degree program in the traditional manner. Civilians are permitted to participate on a space available basis. On-base offices are maintained in the Base Education Center.

Sufficient courses are offered at Barksdale for a student to earn the Associate of General Studies or Bachelor of General Studies degree with a choice of concentration in eleven different areas. The Master of Arts degree may be earned in Counseling and Guidance and in Human Relations and Supervision. The Master of Business Administration may be earned with a specialty in either Finance or Management. The Education Specialists degree in Counseling is also offered.

CONTINUING EDUCATION

Today's rate of increase in knowledge has made constant renewal of education a necessity. It is the responsibility of the university to play its part in meeting this need. Through the

establishment of the Division of Continuing Education, Louisiana Tech University has affirmed its commitment to the role of public service. Annually, thousands of people attend events such as non-credit seminars, workshops and conferences, or enroll in credit courses offered through the university's extension program. These credit and non-credit activities are offered in most fields of study.

THE COOPERATIVE PROGRAM

The College of Engineering, in cooperation with certain industrial firms, provides for a program of alternate periods of work and university study for students in engineering. In addition to furnishing talent to industry, the cooperative program provides an outstanding method for integrating technical and practical industrial experience.

Cooperative arrangements are under development by the College of Home Economics to provide intern or work experience in community, school and hospital food services. Similarly, training programs have been developed for experience in metropolitan fashion merchandising.

The College of Life Sciences sponsors a cooperative work experience program with various agricultural businesses and agencies throughout the United States. Participating students are given the opportunity to apply the knowledge and skills they have acquired in college under practical world-of-work conditions.

INTER-INSTITUTIONAL COOPERATIVE PROGRAMS

Louisiana Tech University and Grambling University entered into a cooperative program, the Inter-Institutional Cooperative Program (ICP) effective the Fall of 1969. This program facilitates free student exchange between the two institutions, making it possible for students to enroll for courses at both schools. Faculty exchange between the two institutions is also a part of the program.

Application for courses to be taken on the cooperating campuses must be made at the institution where admissions requirements have been met and degree programs are being pursued. Credits gained as a "visiting" student apply toward a degree at home or matriculation school. The student's divisional dean or authorized representative must approve the course or courses selected and the course load. A copy of the student's report card bearing the official seal will be furnished the home institution at reporting time by the visited institution.

In 1971, Louisiana Tech University and Northwestern State University entered into a cooperative program whereby a student may complete at Louisiana Tech a portion of the course requirements for the Doctor of Education degree at Northwestern State University. This inter-institutional program is limited to the fields of elementary education and secondary education. For further information, contact the Graduate Director in the College of Education.

Effective October, 1971, Northwestern State University and Louisiana Tech University agreed to participate in an inter-institutional program for the Bachelor of Science Degree in Nursing. Students may enroll at Louisiana Tech University and follow the Northwestern State University program of studies prescribed for nursing majors. When the prerequisites are complete, said students may transfer to Northwestern State University to complete the requirements for the baccalaureate

degree in nursing. For further information, contact the Director of the Division of Nursing.

LOUISIANA TECH ASTRONOMY FACILITIES

The astronomy facilities of Louisiana Tech are used for classroom and laboratory instruction and also for instructional demonstrations to visiting school groups and interested public groups. The facilities at the present time include a Planetarium on the main campus and an Observatory at the Research Park located about eight miles west of the main campus.

The Planetarium seats 120 people under its 40-foot diameter dome. A modern Spitz A4-type instrument projects the sun, moon, and planets as well as about 3,000 visible stars, giving a correct and realistic simulation of the celestial view. The apparent motion of the heavenly bodies is properly synchronized mechanically while speed and intensity are controlled by modern solid state electrical circuitry.

Through the efforts of the Astronomy Committee, a modern astronomical observatory facility has been erected in a remote area eight miles west of the main campus at the University's Research Park. The facility houses a twelve and one-half inch, equatorially mounted cross-axis reflecting telescope designed to permit visual observation of all points in the celestial hemisphere from a conveniently located stationary eyepiece. The instrument is adaptable to extended time photography of deep sky objects and can be arranged for spectrographic studies by the reflection of the coude beam to the floor level through the hollow equatorial axis.

These facilities have extended the effectiveness of instruction in the astronomy courses and are expected to aid greatly in the pursuit of space age and related areas of science.

LOUISIANA TECH COMPUTING CENTER

The Louisiana Tech Computing Center provides computing and consulting support for the instructional, research, and administrative activities of the University. The Center reports administratively to the Vice-President for Academic Affairs.

The equipment and software presently being operated in the Computer Center includes two IBM System 370/158 processors running the VM/CMS and the MVS operating systems, 10 billion characters of disk memory, 4 high-speed tape drives, a network of about 150 directly attached full-screen terminals, and 10 1200-baud dial-in ports. Language processors for the FORTRAN, COBOL, PL1, BASIC, PASCAL, and Assembler languages are supported on this equipment. Popular software systems supported include SAS, SPSS, IIS, ICES, STRUDL, NASTRAN, ACSL, FLOWTRAN and COMPUSTAT.

The Computing Center operates a central laboratory of 38 full-screen terminals and a line printer for use by students and faculty. This laboratory is located in Prescott Memorial Library and is available during library hours (approximately 85 hours per week). The Computer Center's Student Programmer Group serves as the administrative and consulting staff for the laboratory. Several satellite labs of terminals are located in buildings around the campus and provide an additional 62 directly attached terminals for students.

The Computing Center also provides computing professionals from the staff to consult with faculty computer users during office hours. Courses and seminars on computing topics are periodically offered by the staff.

The Computing Center staff operates the administrative computing systems for the University. In addition, the staff provides systems analysis and programming support for the maintenance and development of administrative applications for departments of the University. The staff also assists with appropriate special projects and reports that are required of administrative and academic departments. A central Word

Processing Center is operated for the support of administrative functions and research and publication materials. The word processing and the computing systems are interconnected for data transfer.

Long-range planning for the computing and office automation/word processing needs of the University is an important part of the activity of the Computing Center staff. Projections of needs and goals for the integration of computing into institutional activities have been formulated, and serve as the basis for fiscal year computing services plans.

LOUISIANA TECH CONCERT ASSOCIATION

This unique organization provides a program of well known entertainers, as well as prominent ballet, music and drama groups.

LOUISIANA TECH NUCLEAR CENTER

The Nuclear Center is a centralized facility to promote and control the use of radiation and radioactive material on the Louisiana Tech campus. Its laboratories, equipment and supplies are available to all departments to conduct classes or research projects. In addition, the Nuclear Center staff is available for consultation on the design of experiments involving radioactive material or radiation produced by machines. At present, regularly scheduled courses are available in chemistry, physics, medical technology, zoology, and chemical engineering.

Operation of the Center is in accordance with a license issued to Louisiana Tech by the Louisiana Board of Nuclear Energy, Division of Radiation Control. The Nuclear Center encompasses a radioisotopes laboratory with student and research counting stations, a radioisotope equipment and storage room, office space, a radiochemical laboratory equipped to handle radioisotopes in many forms, a nuclear spectroscopy laboratory, a low level laboratory, and a gamma irradiation facility. The gamma irradiation facility contains over 15,000 curies of Cobalt 60 and is capable of supporting numerous projects requiring high doses of radiation.

In the past, the Nuclear Center has been utilized for special instruction to students attending summer institutes sponsored by National Science Foundation, for research work, for radioactive fallout work, and for regularly scheduled classes. Equipment grants from the U.S. Nuclear Regulatory Commission have provided additional specialized instrumentation and equipment for use by the Zoology Department, the Nuclear Center, and the Department of Chemistry. The Louisiana Tech Nuclear Center is fulfilling its obligation to provide nuclear training to the students of this area and to serve the public by providing information and assistance in nuclear related issues. The Nuclear Center has an active research program in the areas of energy and environment.

LOUISIANA TECH SPEECH AND HEARING CENTER

The Louisiana Tech Speech and Hearing Center located in Robinson Hall affords diagnostic, consultative and remedial services for Tech students and the people of North Louisiana with speech, language, and hearing disorders. The testing and consultative service is provided by faculty who hold the certificate of clinical competence in Speech Language Pathology and/or Audiology and remedial aid is given by student clinicians under supervision of clinic staff.

LOUISIANA TECH PUBLIC SERVICE INFORMATION CENTER

The Center, which is housed in the Research Division of the College of Administration and Business, maintains and

processes data from the 1970 and 1980 Censuses of Population and Housing as well as personal income data furnished by the U.S. Bureau of Economic Analysis. Computer programs and projects have been developed to generate demographic and economic analyses for the State, regions in the State, and for selected areas of the Nation. Short reports, articles, and research projects are prepared, both on an in-house basis and on a contractual basis, for local, state, and regional organizations.

LOUISIANA TECH WATER RESOURCES CENTER

The Louisiana Tech Water Resources Center was established on June 12, 1968 with the purpose of:

1. Providing an interdisciplinary study of developments in the broad area of water resources and to interpret these developments to the best advantage of Louisiana Tech, the State and the region as a whole
2. Advising the administration of actions the University should take in its desired participation in these activities
3. Encouraging and promoting the development of research programs and laboratories, and formulating and recommending policy matters in the area of water research
4. Identifying research problems, encouraging interested faculty members to engage in water resources research, and coordinating an interdisciplinary approach to the solution of water research problems
5. Providing liaison between the University, governmental agencies, municipalities, industry, and the public
6. Expanding the areas of continuing education and student involvement at the undergraduate and graduate levels.

To carry out the purposes listed, the organization of the Water Resources Center consists of a Director, Executive Advisory Committee, and a Technical Advisory Committee. The Director is Chairman of the Committees.

The Director is responsible for coordinating and promoting the activities of the University in the area of water resources; encouraging faculty members, through the Executive Advisory Committee, to participate in water resources research, seminars, and continuing education programs; and encouraging student participation in water resources activities.

The Executive Advisory Committee consists of the Research Directors from the Colleges of Administration and Business, Arts and Sciences, Engineering, and Life Sciences. The Executive Advisory Committee is responsible for advising the Director on the size and direction of the water resources program.

The Technical Advisory Committee, which consists of faculty members interested in water resources, informs the Director of and prepares proposals in areas of research that it deems of interest; assists in stimulating student interest in water resources through courses, research projects, and continuing education programs; and disseminates water resources information in general.

LOUISIANA TECH STALLION STATION

Louisiana Tech stands at stud several prominent Thoroughbred stallions. Representing some of the most popular Bloodlines in America, these stallions are an integral part of Tech's very popular Equine Science program of the Animal Industry Department.

PRESCOTT MEMORIAL LIBRARY

Centrally located in the heart of campus activities, Prescott Memorial Library is a modern, air conditioned, open stack library which offers a full array of informational resources and services. Its comfortable reading areas, books, periodicals, microforms, A-V materials and competent faculty and staff combine to make the library an essential facility for student

and faculty academic endeavors. The library provides the resources and services that undergird all the academic endeavors for the teaching and research programs of the colleges of Administration and Business, Arts and Sciences, Education, Engineering, Home Economics and Life Sciences. The library is open more than 90 hours each week during regular sessions and remains open until 2 A.M. during final exam week.

Prescott Memorial Library houses an extensive and well-balanced collection of informational sources as well as offering extensive opportunities for research through its computerized literature searching services. The library participates in borrowing programs in cooperation with other major libraries. Prescott Library offers on-line search services to faculty and students on a cost recovery basis. Inquiries about this service should be made in room 236 or by calling extension 3594.

An information service, located on the main floor, assists students and faculty members with directional and informational questions, reference and card catalog inquiries. The card catalog, directories, the circulation desk, reference collection, and the reserve book collection and elevators are also located on the main floor, easily accessible upon entering the building.

Bibliographic instruction is offered by members of the Reference Department to beginning students. At any time a professor may request other, more advanced bibliographic instruction tailored to fit a specific informational need.

As part of the OCLC (Online Computer Library Center) and SOLINET (Southeastern Library Network) the library is linked through its own computer terminals with more than 2,000 libraries throughout the United States. Prescott Memorial Library is also a designated depository of federal and state of Louisiana government publications.

The library's faculty and staff welcome the opportunity to serve the students and faculty of the Louisiana Tech academic community.

THE RESEARCH DIVISIONS

The participation of both faculty and students in academic and contract research is strongly encouraged at Louisiana Tech University. Toward this end formally organized divisions of research associated with each college have been charged with the responsibility of coordinating and expediting research activities in their respective colleges. At the institutional level, the Chairmen of Research Divisions are charged with the responsibility of coordinating research activities. Numerous graduate students perform research under the direction of members of the graduate faculty. Contract research for local, state, and national governments, industries and foundations is effected regularly.

SUMMER COMPUTER INSTITUTE

The six colleges and the Graduate School of Louisiana Tech University jointly sponsor a special summer program, the Summer Computer Institute. This program offers computer application training from entry-level courses to advanced, technical courses in many disciplines, including accounting, agriculture, architecture, business management, computer science, education, engineering, microcomputers, nursing and health, science and research, and word processing. National experts are often invited to the Tech campus to teach the special courses. Most of the courses are one week long and earn one credit hour.

The program is designed for professionals who are engaged in full-time work and do not have the time to enroll in courses using the Quarter calendar format, but are in need of professional training in state of the art applications of computers. People may be admitted to and enrolled in Summer Computer

Institute courses for undergraduate or graduate credit as special status, non-degree students. All persons wishing to enroll in other courses in addition to Summer Computer Institute courses, or to enroll in a degree program, must apply for admission through the normal procedures. Regular students may also enroll in Summer Computer Institute courses through the normal registration procedures.

TECH ROME

Tech Rome, a Louisiana Tech University's travel-study program now its seventeenth, year, is Tech's summer campus in Rome, Italy. Each year, some 200 students, faculty, and staff travel to the Eternal City by intercontinental jet and there live and study for six weeks in Tech's own facilities in the heart of Rome.

Tech Rome is open to Tech students as well as to students from outside Tech. A selection of over forty courses is offered representing each of Tech's academic colleges, and courses are taught by Tech faculty from the main campus. Up to thirteen hours credit are available in the six-week session. Both undergraduate and graduate courses are offered.

Besides doing regular course work, the group travels extensively throughout Italy and offers optional side-trips in Italy and to Greece, France, and Switzerland. A student's cultural horizons are further broadened by the opportunity of living six weeks in the historical center of the western world and by exposure to contemporary European civilization. (For further information, contact Louisiana Tech Rome; Ruston, LA 71272, or visit the Tech Rome office on campus in the former President's home.)

PREMEDICINE AND PREIDENTISTRY

In premedical and preidental preparation, a student's major need not be one in a field of science. However, experience shows that the majority of those applying to a professional school will have a science major. Students are urged to follow their personal inclinations in selecting a major, recognizing that a physician or a dentist should have a broad educational background.

First-year students should select a major by the second quarter of the freshman year. A plan of course study will be prepared in consultation with a premedical or preidental advisor. This procedure insures the student of fulfilling minimum entrance requirements for the professional school where the student will later seek admission. The minimum requirements for many medical and dental schools include Biology (Botany/Zoology) with one year of lab, Inorganic Chemistry with one year of lab, Organic Chemistry with one year of lab, General Physics with one year of lab, two years of English, and one year of Mathematics. The requirements vary according to the school and each school must be considered individually in consultation with an appropriate advisor.

Applicants to medical school and dental school are required to take the Medical College Admission Test (MCAT) or the

Dental Admission Test (DAT), respectively. The test should be taken in the spring of the junior year prior to application. It is strongly suggested that these examinations not be taken until the following courses have been successfully completed: genetics, comparative anatomy, animal physiology, organic chemistry, biochemistry, and physics.

The application process is the student's responsibility, but any premedical and preidental advisor will assist with information on how application forms are best completed.

In the spring and fall of the same calendar year, personal interviews are conducted by the Premedical and Preidental Advisory Committee for the purpose of evaluating those students preparing to make formal application to either dental or medical school. This is a very important part of the student's initial application process. After these interviews, the Premedical and Preidental Advisory Committee prepares recommendations that will be reviewed by the appropriate Admissions Committee of the professional schools to which the student applies.

The Premedical and Preidental Advisory Committee is composed of nine faculty members representing the disciplines of Biomedical Engineering, Chemistry, Microbiology, Physics, and Zoology.

The Alpha Epsilon Delta or AED is a national premedical and preidental honor society which is open to students possessing a minimum grade point average of 3.20 and at least 40 semester hours of course work.

Scholarships in varying amounts are available to students preparing in premedicine or preidentistry at Louisiana Tech University. Consult academic department heads represented on the Premedical and Preidental Advisory Committee or the chairperson of the Advisory Committee for specific information.

HEALTH SCIENCE ADVISORY COMMITTEE

Louisiana Tech offers instruction in many health science areas, such as nursing, dietetics, medical records and medical technology. There are many other health careers for which Louisiana Tech can offer pre-preparation courses to prepare students to enter a professional program at another institution.

Some of the pre-professional areas which a student can pursue at Tech are: optometry, pharmacy, podiatry, corrective therapy, dentistry, medicine, osteopathy, occupational therapy, physical therapy, and veterinarian practice. Students interested in these health courses should contact Basic and Career Studies. A counselor will direct the student to an appropriate advisor.

SOILS TESTING LABORATORY

The Soils Testing Laboratory facility contains all basic equipment necessary for analyzing soil for all mineral components. This service is available to all persons in North Louisiana.

ACADEMIC PURPOSES AND OBJECTIVES

As stated in the Master Plan for Higher Education in Louisiana the goals of higher education are: (1) access; (2) opportunity; (3) quality; (4) diversity; (5) financial support; (6) responsiveness; (7) cooperation; and (8) responsibility. The role of the public sector of higher education is to contribute to the State's efforts to reach these goals. It is especially important that all public institutions in Louisiana be open to all qualified citizens regardless of age, race, sex, religion, physical condition, socio-economics status, ethnic background, handicap, marital status or veteran status. A comprehensive well-organized system of higher education is necessary to achieve Louisiana's goals.

The purpose of Louisiana Tech University, a state university, is to provide without regard to race, religion, sex, national origin, age, marital status, handicap, or veteran status, university level educational and cultural experiences which enable students to fulfill their potentialities as individuals at various instructional levels; to promote the acquisition and utilization of new knowledge through research; and as a publicly supported institution, to be concerned with the dissemination and use of knowledge.

ACADEMIC INSTRUCTION OBJECTIVES

To fulfill its educational and cultural purpose, the University offers to all qualified individuals diversified academic programs which are contemporary and innovative. By state law, every prospective beginning freshman who is a resident of Louisiana is eligible for admission to state supported colleges and universities. Instruction is available within the various colleges and schools of the University. Each of the various colleges and schools of the University has specific objectives consistent with the University's purposes. To provide for different student potentialities and objectives, studies are available at both the undergraduate and graduate levels with degree programs through the doctoral level.

In addition to offering classroom and laboratory instruction of a high caliber, the University is mindful of its concern with students' total educational experiences and to this end seeks:

- to provide programs of excellence, to promote the acquisition of knowledge and to encourage the formation of attitudes, understandings, and skills which may permit students to fulfill their potentialities and educational objectives;

- to provide programs which will take cognizance of contemporary career requirements and opportunities of university graduates and which utilize innovative and interdisciplinary concepts;

- to provide learning experiences which will further an understanding of the physical and social world so that students may adjust to, or help improve, the increasingly complex environment in which they live;

- to offer assistance to students in understanding and appreciating the political, social and economic aspects of our democracy and to encourage them to assume their roles as active and productive citizens;

- to encourage students to develop a set of values based on integrity and personal responsibilities which will serve as a guide for the optimum use of their education;

- to help students develop a mental discipline so that they may continue to mature as they cope with new challenges throughout life;

- to provide highly competent faculty and staff and to encourage their continued professional development.

RESEARCH OBJECTIVES

To realize its commitment to research by promoting the acquisition and utilization of knowledge, the University attempts:

- to encourage both pure and applied research activities by appropriately recognizing scholarly additions to knowledge and applications of knowledge;

- to promote the use of the University as a laboratory for the exploration of ideas at all instructional and professional levels;

- to facilitate research activities by supporting organized research units.

SERVICE OBJECTIVES

To fulfill its service obligation to the campus community and the people of the State, the University seeks:

- to assist in the education and development of the people it serves by engaging in various activities such as non-credit workshops and seminars, extension courses, limited evening programs for degree credit, contract research, advisory services, and testing services.

COLLATERAL OBJECTIVES

In order to accomplish the three aforementioned objectives, the University undertakes to pursue certain collateral objectives such as:

- a continuous program of attracting and retaining a skilled administration, faculty, and staff and encouraging their participation in professional activities;

- attracting qualified students and helping them, individually and in groups, to take advantage of the opportunities offered in the academic community. Emphasis will be on the students—their intellectual, psychological, social and physical growth, their present and anticipated needs and aspirations—in order that each student may acquire knowledge and develop the skills and attitudes necessary to achieve personal goals and the goals of today's society;

- developing effective facilities and service for the University, including learning resource centers such as the library and the computing center;

- securing adequate financial support for the activities of the University and maintaining efficient fiscal management;

- interpreting the role of the University to society.

ACADEMIC ORGANIZATION

Louisiana Tech is organized into the Division of Admissions, Basic and Career Studies, Division of Continuing Education, Division of Nursing, six colleges and four schools. The colleges are: Administration and Business, Arts and Sciences, Education, Engineering, Home Economics and Life Sciences. The schools include: Graduate School, School of Art and Architecture, School of Forestry and School of Professional Accountancy.

Tech has adopted the uniform quarter system as its calendar. The quarters are twelve weeks in length.

Louisiana Tech offers evening classes on its campus at both the undergraduate and graduate levels. Extension classes are offered as a public service to the region.

DIVISION OF ADMISSIONS, ORIENTATION, BASIC AND CAREER STUDIES

ADMINISTRATION

PATSY LEWIS, Dean

The Division of Admissions, Orientation, Basic and Career Studies is the academic unit into which all first quarter freshmen enter.

In July, 1972, Basic and Career Studies was incorporated with Admissions to serve as a total service to entering freshmen. All beginning freshmen are in Basic Studies for one (1) quarter. If after the first quarter is completed and the student has earned a minimum of 3.0 on at least eight (8) hours pursued, the student may elect to go into a senior college.

Following the second quarter of work with a minimum of sixteen (16) hours, and a 2.5 grade point average on all hours pursued, the student may apply for admission to a specific college. After the third quarter, the student must have a 2.0 on at least 24 hours to be eligible to move to upper division. Following the fourth quarter or any subsequent quarter, a student must have a 1.5, not be on academic probation, and have the approval of the senior college to gain admission. This regulation also applies to any student who would transfer to Louisiana Tech University.

At any given time, should a student fail to meet the specific requirements of a college, the student will be dropped into the Basic Studies curriculum.

SUMMER ORIENTATION

An orientation and registration program for all new freshmen is held each summer preceding Fall registration. The summer sessions, conducted by the Division of Admissions, Basic and Career Studies, are open to all freshmen who have received official notice of acceptance to Louisiana Tech University.

The purpose of the orientation and registration program is to enable the entering student to become familiar with the University, its academic programs and major courses of study, and to explore educational and vocational interests and goals.

Each student will select courses for the Fall quarter and complete registration, except for payment of fees.

The objectives of the program are: (1) to introduce the student to Louisiana Tech University and make the transition from high school a smooth and orderly process; (2) to provide the student with academic direction and more personal attention through faculty advising and counseling; (3) to acquaint the student with opportunities, responsibilities, and regulations of the University; (4) to register the student for classes with the exception of payment of fees; (fees will be paid in September), and (5) to acquaint parents with University standards for students and provide an overview of Louisiana Tech University.

DEVELOPMENTAL EDUCATION PROGRAM

The Louisiana Tech University Developmental Education Program follows the guidelines of the Model Developmental Education Program described by the Board of Regents Task Force. The program is comprehensive and highly structured so that the academically underprepared student may be identified and assisted in developing his abilities to meet the requirements of college-level courses. The components of this

program of instruction include English, mathematics, reading and study skills instruction, as well as tutoring and counseling.

A student who has an English ACT score of 15 or less will be required to take a diagnostic test in English and a student who has a composite ACT score of 15 or less will be required to take a diagnostic test in reading. Each beginning student is required to take the Mathematics Placement Exam. Those students who score below the established criteria in the above three areas will be required to take developmental education courses. Students who place in two or more of the three developmental education courses will be required to take a course in study skills and career development.

A student who places in any of the developmental (099) courses must register in those courses if there are openings available in them before he registers for any college-level courses. A maximum of four quarters will be allowed for the full-time student to complete all courses needed in the Developmental Education Program. A maximum of three attempts at a given developmental course will be allowed. The student will be dismissed from the University if this time limit is not met.

Class attendance in the Developmental Education Program is mandatory. The student's counselor is notified immediately when one absence from class is noted. Withdrawal from the developmental education classes will not be permitted, unless there are extenuating circumstances. If he needs to reduce his course load, the student will be required to drop any regular courses, before any courses in the Developmental Education Program are dropped.

No credit is allowed in any curriculum for any courses with a catalogue number beginning with zero (0) (i.e. English 099 etc.). These courses are open only to those students who place in them by examination.

CAREER STUDIES

Two-Year Curricula

Included in this division is the Career Studies program. All two-year curricula are administered from this division with counseling and supervision being coordinated with the senior colleges.

The objectives of two-year associate degree programs are: (1) to permit students to continue their educational development in a university-level climate; (2) to provide a curriculum of both general education and specific knowledge; (3) to provide a meaningful termination point for students desiring only two years of college; and (4) to facilitate the present or future continuation of the associate degree students' education toward the baccalaureate degree. The two-year associate degree programs which Louisiana Tech University is authorized to provide are listed as follows: Business Technology, Food Service Supervision, Instrumentation Technology, Land Surveying Technology, Liberal Arts and Sciences, Medical Records Technology, Nursing, Petroleum Technology and Secretarial.

ASSOCIATE DEGREE GRADUATION REQUIREMENTS

See "Graduation Requirements" for an Associate Degree.

BUSINESS TECHNOLOGY

The primary objective of the program is to provide an educational alternative for students who desire, and need for their intended careers, basic education beyond high school, but less than a four-year college program, and some practical knowledge to help prepare them for job entry and possible advancement opportunities. Job opportunities include positions such as supervisors in retail stores, offices, purchasing, and small business, plus opportunities in governmental agencies. This program may also serve the student as a point of entry for a regular four-year college program for the study of business. The degree is Associate of Science.

BUSINESS TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Finance 100	3
Liberal Education Elective*	3
Management 105, 201	6
Mathematics 114.....	3
Psychology 102 or Sociology 201	3
Social Studies Elective*	3
Speech 110.....	3
	30

Sophomore Year	Semester Hours
Accounting 203, 204, 210.....	7
Business Communication 205**	2
Economics 215.....	3
Marketing 235	3
Quantitative Analysis 220	3
Science or Approved Elective*	3
Restricted CAB electives***	9
	30

TOTAL SEMESTER HOURS60

*The electives are defined in the College of Administration and Business section of this bulletin.

**Students having basic typewriting/keyboarding in high school are usually ready to take Business Communication 205. Students who have never had typewriting/keyboarding will need to take Office Administration 101 prior to taking Business Communication 205. The semester hours of Office Administration 101 will not count in the hours required for the degree.

***Nine hours to be selected from Economics 100 and 200, Finance 201, and Office Administration 210 and 250. No 300 or 400 level CAB courses can be taken in this curriculum.

FOOD SERVICE SUPERVISION CURRICULUM

Freshman Year	Semester Hours
Bacteriology 210	3
English 101, 102.....	6
Food & Nutrition 112, 203, 212, 222.....	11
Mathematics 114*	3
Sociology 201	3
Speech 110 or 377	3
Electives**	2
	32

Sophomore Year	Semester Hours
Food & Nutrition 242, 342, 282.....	12 or 16
Management 201	3
Psychology 204.....	3
Electives.....	11 or 15
	32

TOTAL SEMESTER HOURS64

**Students wishing to meet American Dietetic Association requirements as a dietetic technician should select the following courses as electives: Home Economics 127, 457; Food & Nutrition 207, 213, 243.

Students wishing to enter the CUP in dietetics should select Chemistry 130, 131, and 132 as electives.

*Students wishing to enter the CUP in dietetics are required to complete Math 110.

INSTRUMENTATION TECHNOLOGY

Instrumentation Technology is primarily concerned with the theory, design, operation and maintenance of the variety of instruments used by modern industry. The program prepares students in the practical and theoretical aspects of this field through course work supplemented by a considerable amount of laboratory experience. Emphasis is placed on practical skill so that the graduate will be able to perform a variety of tasks in the area of fabrication, installations, checkout, calibration, trouble-shooting, maintenance, and drafting for chemical, electrical or mechanical industrial firms. This program leads to the degree of Associate of Science.

INSTRUMENTATION TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Electro-Technology 160	3
Electro-Technology 170, 171, 180, 181.....	8
Electrical Engineering 203	2
Mechanical Technology 151.....	2
Technical Drafting 101	3
Mathematics 111, 112.....	6
	30

Sophomore Year	Semester Hours
Electro-Technology 260, 261, 271, 284, 285.....	9
Electro-Technology 270	3
English 303.....	3
Instrumentation Technology 201	3
Physics 209, 210, 261, 262.....	8
Technical Elective.....	3
Mathematics 220.....	3
	32

TOTAL SEMESTER HOURS62

All electives for the program must be approved by the advisor of the program.

LAND SURVEYING TECHNOLOGY

This two-year program of study is offered as an optional program of basic instruction in the Civil Engineering curriculum. Much of the course work is either required or acceptable as electives in the Civil Engineering curriculum; therefore, students completing the prescribed courses of study in Land Surveying may continue in the four-year curriculum of Civil Engineering or they may elect to accept immediate employment as land surveyors. Many job opportunities are to be found with federal, state, parish, or municipal governments; with construction or engineering firms, and with registered Land Surveyors. After six years of experience, the graduate will be eligible to apply for registration as a Land Surveyor. This license will permit the person to begin his/her surveying practice. This program leads to the Degree of Associate of Science.

LAND SURVEYING TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
Accounting 203.....	2
Computer Science 190.....	1
English 101, 102.....	6

Management 201	3
Mathematics 111, 112	6
Technical Drafting 101	3
	21
Summer Program	
Civil Engineering 250, 251, 252, 253	12
Sophomore Year	
Business Law 441	3
Civil Engineering 258, 304, 433	7
Civil Technology 257	3
Business Communication 305	3
Speech 110	3
Electives	10
	29
TOTAL SEMESTER HOURS	62

All electives must be approved by the Land Surveying Technology advisor.

MEDICAL RECORD TECHNOLOGY

The Medical Record Technology Program will offer students the opportunity to learn technical skills necessary to maintain certain components of a health information system. The program is accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association in collaboration with the Council on Education of the American Medical Record Association. Graduates of the program are eligible to write the accreditation examination of the American Medical Record Association. Graduates who pass this examination may use the credential, A.R.T., Accredited Record Technician. The 2-year medical record technology program leads to the Associate of Science degree.

The structure of the medical record technology program requires students to complete certain courses in a specific sequence in order to conclude their studies within the normal two-year time frame. Therefore it is highly important that first-year medical record technology students develop a plan of study in consultation with the program director. This plan of study should be placed on file in the program director's office before or during registration for winter quarter. A student who does not confer with the program director in planning his schedule of classes could inadvertently prolong his course of study a full calendar year.

During the first year of enrollment in the medical record technology program, the student is required to take the PSB-Health Occupations Aptitude Examination.

The medical record technology program includes a directed practice component in which the student performs medical record procedures in hospitals and other health care facilities. Admission to the directed practice component requires approval of a faculty committee. To be eligible to register for directed practice, the student must have an overall GPA of no less than 2.0, a Louisiana Tech University cumulative GPA of no less than 2.0, and a minimum grade of 'C' in all required courses. If a student wishes to enroll in a directed practice course after a lapse of more than three quarters since completion of the prerequisite courses, a committee of Medical Record Science faculty will determine whether or not remedial coursework is necessary before placing the student in directed practice.

Medical Record students must be covered by professional liability insurance prior to registering for any directed practice course.

In addition to regular University fees, students beginning directed practice must provide lab coats, name pins, insurance, a recent physical examination report and their own transportation.

High school students planning to enter the medical record technician program should take the general college preparatory courses and acquire a proficiency in typing.

Freshman Year	Semester Hours
English 101, 102	6
Health and Physical Education	1
Medical Record Science 100, 103, 104, 105, 106, 203, 205, 280	18
Math 110	3
Zoology 225, 226	4
	32
Sophomore Year	
Quantitative Analysis 220	3
Health & Physical Education	1
Medical Record Science 210, 211, 212, 220, 221, 225, 230, 231	19
Sociology 201	3
Elective (approved)	2
Management 201	3
	31
TOTAL SEMESTER HOURS	63

NURSING

The purpose of the Division of Nursing is to prepare graduates, with an Associate of Science Degree in Nursing, to function as beginning practitioners under the supervision of qualified professional nursing and/or medical personnel; thus affording unique benefits to the physical and mental health program of the local community. The graduates will, also, upon completion of the prescribed program, be eligible to write the examination required for state licensure as registered nurses.

The Division of Nursing is approved by the Louisiana State Board of Nursing and accredited by the National League for Nursing.

Admission to the Division of Nursing will be based upon the following criteria established by the Admission Committee, Division of Nursing:

- Acceptable scores on the ACT
- Grade point average of 2.6 or better from high school or acceptable score on the GED test.
- If applicable, acceptable score on the Louisiana State Board of Practical Nursing Examination.
- Indication of emotional stability, character, personality, maturity and interest in nursing as determined by personal interview, three letters of reference and acceptable scores on the NLN Pre-Nursing and Guidance Examination.
- Applicants must furnish satisfactory evidence of good health on forms to be sent by the University. An annual physical examination X-ray is required.
- Nursing student must hold current C.P.R. certification.

Applicants for readmission and transfer students must meet admission and progression criteria at the time of application. If more than 3 quarters have elapsed since the student was enrolled in a nursing course, a reapplication must be approved by the Admissions Committee.

All transfer students must provide a syllabus and course description for all courses for which transfer credit is desired. They must also submit a letter of reference from a faculty member of the school of nursing previously attended.

Nursing students must be covered by professional liability insurance prior to registering for any nursing course.

In addition to the regular University fees, cost for uniforms, supplies and equipment including books required in the nursing program is approximately \$595.

Students must achieve a minimum grade of 'C' in each nursing and nursing related course to progress from one sequentially designed nursing course to the next. A nursing course may be repeated only one time. An extension student who is unsuccessful on a challenge exam may take the course on campus. Subsequent failure in that course prohibits progression.

Upon successful completion of all course requirements, the student is eligible for graduation with an Associate of Science Degree.

NURSING CURRICULUM

Freshman Year	Semester Hours
Nursing 109, 110, 112, 114	15
Zoology 225, 226, 227	7
Mathematics 110	3
Life Sciences 101	1
English 101	3
Bacteriology 212, 213	4
Psychology 102	3
	—
	36
Summer Quarter	
Nursing 116	5
	—
	5
Sophomore Year	
Nursing 210, 212, 214, 216	18
Psychology 408	3
Food & Nutrition 203	3
English 102	3
	—
	27
TOTAL SEMESTER HOURS	68

PETROLEUM TECHNOLOGY

The Petroleum Engineering Technology curriculum is a two-year program leading to the Associate of Science degree. The objective of the program is to train petroleum technicians who can work effectively with professional engineers in creating solutions to engineering problems. The program emphasizes practical aspects through applied course work and a considerable amount of coordinated laboratory work. Registrants will be trained to perform maintenance and test operations, to make measurements, to provide engineering support and in general to conduct a variety of technical tasks proficiently. The graduate will have received training in report writing, documentation and general industrial practices and can fit rapidly into the typical industrial/technical organization within the petroleum industry.

PETROLEUM TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
English 101, 102	6
Geology 111, 112	4
Humanities/Social Studies Electives	6

Mathematics 111, 112, 220	9
Petroleum Engineering 200	3
Technical Drafting 101	3
	—
	31

Sophomore Year	
Communications Electives	3
Electro-Technology 160, 161	4
Petroleum Technology 101, 102, 103, 104	12
Physics 209, 210, 261, 262	8
Technical Elective	3
	—
	30

TOTAL SEMESTER HOURS

Electives must be approved by the Head of the Department of Petroleum Engineering.

SECRETARIAL CURRICULUM

The Associate of Science Degree, Secretarial Curriculum, is designed for students who wish to qualify for both secretarial and administrative support positions which require the knowledge of shorthand and/or information word processing. The program combines general and liberal education with business courses in addition to the rigorous specialized study of the various facets of office procedures.

Students completing this curriculum may expect to gain entry and progress in executive assistant/administrative assistant positions in automated electronic office environments. This program may also serve the student as a point of entry into a regular four-year program.

SECRETARIAL CURRICULUM

Freshman Year	Semester Hours
English 101, 102	6
Management 105	3
Mathematics 114	3
Office Administration 102*, 103, 210, 214, 215	13
Science Elective**	3
Speech 110	3
	—
	31

Sophomore Year	
Accounting 203, 204	4
Business Communication 205	2
Economics 215	3
Liberal Education or Social Studies Elective**	3
Psychology 102 or Sociology 201	3
Office Administration 211, 216, 250, 307	12
Quantitative Analysis 220	3
	—
	30

TOTAL SEMESTER HOURS

*Students having basic typewriting/keyboarding in high school are usually ready to take Office Administration 102. Students who never had typing/keyboarding will need to take Office Administration 101 prior to taking Office Administration 102. The semester hours of Office Administration 101 will not count in the hours required for the degree.

**The Electives are defined in the College of Administration and Business section of this bulletin.

Department of Air Force Aerospace Studies

COL. LAVELLE PRINE

Professor of Air Force Aerospace Studies

PURPOSE: The MISSION of the Air Force ROTC is to commission the finest young men and women in the United States to meet Air Force requirements.

The AFROTC program is a major source of Air Force officer procurement.

OBJECTIVES: Air Force ROTC Detachment 305 has three objectives: 1) To recruit, select, retain, and commission officer candidates as Second Lieutenants in the U. S. Air Force; 2) Provide college-level education that qualifies cadets for commissioning in the U. S. Air Force; 3) To develop each cadet's sense of personal integrity, honor, and individual responsibility, and develop potential as a leader and a manager.

Students have an option to complete the Air Force ROTC Program as a member of either the four- or two-year program.

FOUR-YEAR PROGRAM: This is divided into two parts -the General Military Course (GMC), for Freshmen and Sophomores, and the Professional Officer Course (POC), for Junior and Senior students. A four-week Field Training is conducted at an Air Force base during the summer months, normally between the Sophomore and Junior years.

TWO-YEAR PROGRAM: This is the Professional Officer Course for Juniors and Seniors. Cadets are normally selected from transferees from other colleges or from sophomore students who did not enroll in the General Military Course as freshmen. The basic requirement is that the student have two academic years remaining at either the undergraduate or graduate level, or a combination of both, upon entering the Professional Officer Course. A prerequisite for enrollment in the Professional Officer Course via the two-year program is the completion of a six-week summer Field Training course given at an Air Force base. Students in the two-year program must attend field training the summer before they enroll in the POC program. Since the processing procedure for the POC must be completed several months in advance of enrollment, students interested in the Two-Year Program should apply during the preceding fall and winter quarters.

REQUIREMENTS FOR ADMISSION: General Military Course (Freshmen and Sophomores); Enrollment requirements are as follows: (1) be a U.S. Citizen, (2) possess good moral character, (3) not be more than 30 years of age at graduation and commissioning (may be waived to 35 for prior service); not more than 26 1/2 years at graduation and commissioning if entering flight training, (4) be medically qualified, (5) sign an oath of loyalty to the United States, and (6) be accepted by the University as a regular full-time student. Veterans will be phased into Air Force ROTC according to their college standing and at the discretion of the Professor of Air Force Aerospace Studies.

Professional Officer Course (Juniors and Seniors): Students are selected for the POC on a competitive basis. In addition to those requirements mentioned for the GMC, entrance into the POC requires that students be not less than 17 years of age; meet mental and physical requirements for commissioning; have satisfactorily completed approximately 60 semester hours toward his or her degree and be in good standing in the institution; be recommended by the Professor of Air Force Aerospace Studies.

ACADEMIC CREDIT: The classroom work in both the General Military and Professional Officer Courses is classified as elective work and is credited in varying amounts, depending on the student's program, toward degree requirements. Students should consult with the dean of their particular college to determine the amount of credit allowed.

FIELD TRAINING: All cadets must complete summer Field Training which consists of academic work, intensive orientation on Air Force environment and traditional military training. It also includes orientation flight in Air Force aircraft and a close look at the Air Force in operation. Cadets in the two-year program must, by law, attend six-week Field Training prior to POC entry. Four-year program cadets attend four week Field Training, normally between their sophomore and junior years. Field Training is conducted at an Air Force base, and all cadets receive approximately \$112 per week while in attendance. Round trip travel pay between their home and the Field Training base is provided to each cadet.

FLIGHT INSTRUCTION PROGRAM: Junior members planning to enter pilot training are required to complete the Flight Instruction Program, unless they are in possession of a valid FAA private (or higher) license. The program affords cadets the opportunity to solo in light aircraft, providing approximately 13 hours of total time at government expense.

LEADERSHIP LABORATORY TRAINING: In addition to the academic training received, a part of each Aerospace Course is reserved for Leadership Laboratory. The Cadet Corps is comprised completely of cadets in the AFROTC program. The corps is cadet directed and operated and all plans and programs are developed and executed by cadets. Consequently, each potential Air Force officer has the opportunity to develop leadership abilities through directed and elected activities.

REQUIREMENTS FOR COMMISSION: Upon completion of AFROTC POC and receipt of a baccalaureate degree, cadets are eligible for a commission as a Second Lieutenant in the United States Air Force.

DISTINGUISHED AIR FORCE ROTC GRADUATES: Up to 15% of the seniors each year may be designated as Distinguished Graduates of the AFROTC program. Their superior performance earns them preferential consideration in job assignments and in opportunities for both Regular Air Force Commissions and graduate education at Air Force expense.

MONETARY ALLOWANCE WHILE PURSUING THE POC: All POC members receive a tax-free monthly allowance of \$100 or a total of \$2,000 during this two-year course.

COLLEGE SCHOLARSHIP PROGRAM: Each year the Air Force awards a number of four, three, three-and-a-half, two and two-and-a-half year scholarships on a competitive basis, to the best qualified students. Scholarships include \$100 per month for 10 months each year the scholarship is in effect, and also provide tuition, fees, books, laboratory expense, and out of state fees if applicable.

BOOKS AND UNIFORMS: All uniforms and textbooks required for the General Military Course and the Professional Officer Course are furnished by Louisiana Tech and the U.S.

Air Force. Each member of AFROTC will make a refundable deposit of \$10.00 to cover possible uniform loss or damage.

EXTRACURRICULAR ACTIVITIES: AFROTC sponsors a number of functions that provide avenues for further personal development for qualified cadets.

ARNOLD AIR SOCIETY: The Emmett O'Donnell Squadron of the Arnold Air Society is an organization dedicated to promoting a better understanding of the role of airpower in the Aerospace age. This is a national honorary society limited to selected cadets who demonstrate outstanding academic and leadership traits.

ANGEL FLIGHT: The O'Donnell Flight of the National Angel Flight is an honorary co-ed auxiliary of the Arnold Air Society. It is a service organization open to co-eds who meet the Flight's qualifications.

HONOR GUARD: A military group composed of outstanding cadets who perform a variety of ceremonial functions. Those include providing the personal escort guard for the

University President, conducting flag ceremonies, providing a color guard for campus and civic activities, and giving precision drill exhibitions.

SPECIAL OPERATIONS SQUADRON: This activity allows cadets to follow a more strenuous and demanding program associated with Air Force special operations and special forces training. Survival training and land navigation are some of the activities pursued.

ORIENTATION FLIGHTS AND AIR BASE VISITATION: Members are afforded opportunities to fly in various types of military aircraft for purposes of orientation and familiarization. Air Force Base visitations are also offered and encouraged.

FORMAL MILITARY BALL: Cadets sponsor a formal Military Ball annually for the members of the Corps and their invited guests.

INTRAMURAL SPORTS: AFROTC sponsors teams and individuals in all campus sports events.

College of Administration and Business

OFFICERS OF INSTRUCTION

BOB R. OWENS, Dean
BURTON R. RISINGER, Dean Emeritus
PHILIP F. RICE, Director, Graduate Division
JAMES R. MICHAEL, Director, Research Division
HOMER G. PONDER, Director, Undergraduate Division
HAROLD J. SMOLINSKI, Director, School of Professional Accountancy
JAMES L. HESTER, Head, Department of Business
TOM S. SALE, III, Head, Department of Economics and Finance
REBA K. NEEL, Head, Department of Office Administration and Business Communication

ACCREDITATION

The College of Administration and Business is fully accredited by the Accreditation Council of the American Assembly of Collegiate Schools of Business (AACSB). The Research Division of the College of Administration and Business is accredited by the Association for University Business and Economic Research (AUBER).

DEGREES AND CURRICULA

ASSOCIATE. Two programs lead to the Associate of Science degree: the Secretarial Curriculum and the Business Technology Curriculum. Requirements for these programs are given in the Bulletin under the Division of Admissions, Basic and Career Studies.

BACHELOR. The baccalaureate degree offered by the College is the Bachelor of Science degree. The four-year curricula leading to the degree of Bachelor of Science are the Accounting Curriculum, the Office Administration Curriculum, the Business Economics Curriculum, the Business Administration Curriculum and the Finance Curriculum.

MASTER. The Master of Business Administration degree is offered. The curriculum emphasizes management decision making which is applicable to all specialties in business administration, as well as to general management responsibilities. A number of specialties are available.

The Master of Professional Accountancy degree is offered.

DOCTOR. The Doctor of Business Administration (D.B.A.) degree is offered.

See the University Graduate School section for additional information on graduate degrees.

HISTORY

Among the purposes listed in the original act creating the University was to give instruction in business subjects and Tech's first graduate, Harry Howard, graduated in 1897 in business. In 1950, the School of Business Administration was created by the Louisiana State Board of Education. In 1970, Tech was designated a University and the School became the College of Administration and Business.

PURPOSE

As part of a state university, the College of Administration and Business recognizes its commitment to serve the public interest principally in educational endeavors. In accordance with general university objectives, therefore, it is the primary purpose of the College to offer instructional programs which combine broad educational backgrounds with the opportunity

for some specialization in selected business and economics areas.

RESEARCH DIVISION

The activities of the Research Division involve contract and, to the extent resources are available, non-contract research. Contract research activities are oriented mainly toward public service projects. Non-contract research activities include publication of *"The Louisiana Economy"*.

CENTER FOR ECONOMIC EDUCATION

The Center for Economic Education, directed by Dr. B. Earl Williamson, is affiliated with the Louisiana Council and the national Joint Council on Economic Education. The Center's primary purpose is to provide a comprehensive program for increasing the level of economic understanding.

BURTON R. RISINGER FACULTY CHAIR

Dean Emeritus Burton R. Risinger was Dean of the College of Administration and Business from 1945 until 1975. He was also the founding President of the Lincoln Bank and Trust Company.

To honor his meritorious service the Lincoln Bank and Trust Company established the Burton R. Risinger Faculty Chair.

SMALL BUSINESS DEVELOPMENT CENTER/ SMALL BUSINESS INSTITUTE

Louisiana Tech is one of several Louisiana Universities, along with the Department of Commerce and Industry, providing a statewide network of management counseling and technical assistance to small business firms and prospective small business owners. The Small Business Institute provides opportunities for students, under the direction of a faculty member, to serve as a consulting team.

HUMAN RESOURCES CENTER

The Human Resources Center was established to coordinate and promote instruction, research, and public service in Human Resources.

CENTER FOR REAL ESTATE STUDIES

The Louisiana Real Estate Commission's \$50,000 grant to develop the Real Estate program at Louisiana Tech constituted the Center's initial funding. The Center coordinates Real Estate research and promotes interaction with Real Estate professionals.

PERSONNEL EXECUTIVE SCHOOL OF THE SOUTH

Founded October, 1981, the Personnel Executive School serves contemporary training, research and developmental needs of personnel practitioners in the states of Louisiana, Texas, Oklahoma, Arkansas, Tennessee, and Mississippi. The School also prepares students and practitioners for the national accreditation examinations offered on campus by Personnel Accreditation Institute.

LOUISIANA SURVEY CENTER

The Louisiana Survey Center conducts surveys for private organizations, academic projects, and on subjects of general interest. The Center maintains two panels, the Louisiana Household Survey Panel and the Louisiana Business Executives Panel, to facilitate the collection and dissemination of

data on attitudes and expectations of interest to the general public.

AWARDS AND RECOGNITIONS

BETA ALPHA PSI AWARD

Beta Alpha Psi annually awards a certificate in recognition of outstanding scholarship in the field of accounting to the graduating senior with the highest scholastic average.

BETA GAMMA SIGMA

Students with an outstanding scholastic record in the College of Administration and Business may be recognized by election to the honorary society of Beta Gamma Sigma.

CAB OUTSTANDING SENIOR SCHOLARS

The faculty of the College of Administration and Business each year elects from among the seniors a group of students who are designated as outstanding senior scholars. The selection is made primarily on the basis of scholarship. The pictures and accomplishments of these students are placed in a lighted bulletin board for a year.

CPA AWARD

The Society of Louisiana Certified Public Accountants makes an annual award to the Accounting student who is pursuing the Master's degree program and who has an excellent scholastic average, providing the student has taken 15 semester hours of accounting (number 400 and above) at Louisiana Tech University.

DELTA SIGMA PI SCHOLARSHIP AWARD

The Delta Sigma Pi Scholarship Award key is awarded annually by the fraternity to the senior, whether or not a member of the fraternity, who ranks the highest in scholarship in any one of the curricula in the College of Administration and Business.

NAA OUTSTANDING SENIOR AWARD

The National Association of Accountants Outstanding Senior Award is given annually to a student who has shown outstanding academic achievement in the discipline of accounting. The award is given by the Shreveport Chapter of NAA.

PHI CHI THETA NATIONAL KEY AWARD

The Phi Chi Theta National Key Award is presented annually to a senior member of the fraternity enrolled in the College of Administration and Business. The key is awarded on the basis of scholarship, leadership and activities.

SCHOLARSHIPS

For information about scholarships available to all Louisiana Tech students, contact the Division of School and College Services. The following scholarships are available to CAB students only. Those administered by the CAB are awarded by faculty scholarship committees and information may be obtained by contacting the Office of the Dean, College of Administration and Business, P.O. Box 10318, Tech Station, Ruston, Louisiana, 71272.

B. H. RAINWATER

The family of B. H. Rainwater, Sr., a man prominent in Ruston business and civic affairs for over 50 years, has established a memorial scholarship. The amount of \$300 is awarded annually to a student in the finance curriculum who is interested in a career in Real Estate.

BURTON R. RISINGER

Through the gifts of alumni and others a scholarship has been established to honor Burton R. Risinger, Dean Emeritus. The award is normally awarded to a first year Business Administration student in the approximate amount of \$300.

BUSINESS FOUNDATION

To assist the College in its developmental programs there is a non-profit, tax exempt corporation known as the SBA Foundation. Contributions are accepted by the foundation from corporations, alumni and others. Any gifts designated for scholarships are available to students in CAB programs.

LAWSON L. SWEARINGEN—COMMERCIAL UNION ASSURANCE COMPANIES

Commercial Union Insurance Companies, headquartered in Boston, Massachusetts, with regional offices located in Ruston, Louisiana, established in 1981 a recognition endowment award in the CAB in honor of its Chairman and Chief Executive Officer, Lawson L. Swearingen. Mr. Swearingen is a 1947 business graduate of Louisiana Tech.

EUGENE L. GILL

When he learned of Tech's new School of Professional Accountancy, Mr. Gill—a CPA licensed in three states—wrote, "... This is one of the greatest movements in the proper direction for those who are planning to pursue a course of study preparing them to enter the accounting profession ...". In 1976 he established a fund to provide each year financial assistance for a deserving student in the School. Additional information is available from the School's director.

LORAIN N. HOWARD ENDOWED SCHOLARSHIP PROGRAM

The family and friends of Loraine N. Howard, prominent business woman and community leader, have established a memorial endowment for scholarships for students in Office Administration. The scholarships are awarded annually to outstanding students pursuing a curricula in the Department of Office Administration and Business Communication.

R. WAYNE MONDY SCHOLARSHIP

Dr. R. Wayne Mondy, a 1974 Tech graduate with the Doctorate of Business Administration, has established a scholarship program with contributions to the SBA Foundation. The endowment fund will provide scholarship assistance in the minimum amount of \$300 to a student enrolled in a program of the College of Administration and Business.

J. MURRAY MOORE SCHOLARSHIP

J. Murray Moore, a 1942 Tech Business Administration graduate, has endowed a \$28,950 scholarship fund in the CAB to "encourage students in making a career in private enterprise." Mr. and Mrs. Moore operate a construction firm based in El Dorado, Arkansas.

T. L. JAMES AND COMPANY

T. L. James and Company has established a scholarship-internship award for an entering freshman each year who plans to enroll in one of the curricula of the College of Administration and Business. The award is a minimum of \$2,600 during a four year program in the form of \$650 scholarships for each of the first three years and an internship work opportunity in the final year of study which will enable the student to earn at least as much as the scholarship portion of the award.

CHARLES L. WINGFIELD—C.I.T. FINANCIAL SCHOLARSHIP FUND

C.I.T. Financial Corp., headquartered in New York City, has established a \$13,500 recognition endowment award in the CAB in honor of its financing division vice president, Charles L. Wingfield. Mr. Wingfield is a 1948 business graduate of Louisiana Tech.

DAVID L. GLOER

The Beta Psi Chapter of Delta Sigma Pi has established a scholarship award in memorial to one of its outstanding members killed in the Vietnam War. The "David L. Gloer Scholarship Award" (fifty-dollar minimum) is given annually to a senior in any field of study in the College of Administration and Business. Selection of the recipient is based on academic standing, financial need, and other considerations.

PHI CHI THETA

The Delta Eta Chapter of Phi Chi Theta awards annually a scholarship to a member enrolled in any curricula in the College of Administration and Business. Selection is made on the basis of need, scholastic achievement, leadership qualities, character, motivation and potential by a committee selected from the members of the fraternity.

JOSIE W. CAMPBELL O'NEAL SCHOLARSHIP

Mr. John A. O'Neal and Mrs. Paul Rosenzweig have established a scholarship program in the department of Office Administration and Business Communication in honor of their mother Mrs. Josie W. Campbell O'Neal. The late Mrs. O'Neal was a school teacher in Lincoln and Ouachita parishes during the early 1900s and was always interested in education. The scholarships are awarded to students pursuing a degree in Office Administration and is based on academic record and need.

CYNTHIA ANN CLARK THOMPSON MEMORIAL SCHOLARSHIP

William Norman Thompson, a 1980 Tech graduate, has established a scholarship in memory of his wife, a former Tech student, for students of the School of Professional Accountancy. The scholarship is awarded annually to a student with a financial need who has had to work to meet that need.

THE O. B. CLARK ENDOWMENT FOR BUSINESS SCHOLARSHIPS

Relatives of Mr. O. B. Clark have established a \$11,000 endowment fund in his honor for business scholarships. Mr. Clark is a 1914 business graduate of Louisiana Tech and is a prominent banker and land owner in Strong, Arkansas.

THE WILLIAM A. MARBURY AND VIRGINIA LOMAX MARBURY ENDOWMENT FOR BUSINESS SCHOLARSHIPS

Mr. and Mrs. William Marbury have established a \$25,000 endowment fund for business scholarships. Mr. Marbury, President of the Marbury Companies in Ruston, said the award 'just gives Virginia (Mrs. Marbury) and me a very warm feeling. We want to return something to the University and community that have given so much to us.' Both Mr. and Mrs. Marbury are Tech graduates.

LOTHAR I. IVERSEN MEMORIAL SCHOLARSHIP

A \$10,000 endowed scholarship fund has been established in accordance with the will of Lothar I. Iversen. Dr. Iversen was a member of the Louisiana Tech business faculty with the rank of Professor of Finance from 1955 to 1958.

THE THOMAS A. AND LUCINDA RITCHIE WALKER ENDOWMENT FUND

Andrew N. Walker and Frances Thomas Walker have established a \$20,000 endowment fund for business scholarships. This scholarship is in honor of Mr. and Mrs. Thomas A. Walker who live in Minden, Louisiana. Mr. Thomas Walker serves as Secretary-Treasurer of the Woodard-Walker Lumber Company. Both Mr. and Mrs. Walker received graduate degrees from Louisiana Tech in 1976.

WILLIAM ROY AND MAXINE R. ADAMS, JR. SCHOLARSHIP FUND FOR ACADEMIC EXCELLENCE

Mr. and Mrs. William Roy Adams, Jr. have always been ardent supporters of Louisiana Tech University, especially in the area of academic excellence. This scholarship is based on academic excellence and is to be awarded to a MPA candidate of at least Junior standing and of good moral character.

ORGANIZATIONS

ACCOUNTING CLUB

The Accounting Club was organized in December, 1953, as a professional organization. The purpose of the club is to encourage higher standards of scholarship and develop a closer relationship among the accounting students, faculty, and businessmen.

ALPHA KAPPA PSI

Eta Tau chapter of the professional national fraternity of Alpha Kappa Psi was chartered on February 12, 1967. Alpha Kappa Psi is the oldest professional fraternity in business. The objects of Alpha Kappa Psi are "to further the individual welfare of its members; to foster scientific research in the fields of commerce, accounts, and finance; to educate the public to appreciate and demand higher ideals therein; and to promote and advance in institutions of college rank, courses leading to degrees in business administration."

AMERICAN SOCIETY OF PERSONNEL ADMINISTRATION

The Louisiana Tech Chapter of the American Society of Personnel Administration was chartered in 1977. The organization is a worldwide professional association of personnel and industrial relations practitioners, university faculty members, and students. The programs and activities of the organization are designed to provide a professional enrichment for the student's academic experience.

BETA ALPHA PSI FRATERNITY

Alpha Chi chapter of the national fraternity of Beta Alpha Psi was established in May, 1956. Beta Alpha Psi is a national professional and honorary fraternity, the purpose of which is to encourage and foster the ideal of service as the basis of the accounting profession; to promote the study of accountancy and its highest ethical standards; to act as a medium between professional accountants, instructors, students, and others who are interested in the development of the study or profession of accountancy; to develop high moral, scholastic, and professional attainments in its members; and to encourage cordial relations among its members and the profession.

BETA GAMMA SIGMA

Beta Gamma Sigma is the national honorary scholastic society for students in all fields of business. It is the scholastic society recognized by the Accreditation Council of the American Assembly of Collegiate Schools of Business. A school or college of business administration must be a member of the

Accreditation Council of the AACSB in order to have a chapter of Beta Gamma Sigma. Membership in the society is highly prized as a badge of merit recognized by leading business administrators everywhere.

BUSINESS STUDENTS ASSOCIATION

The official student body organization of the College is the Business Students Association. The president of this association is the president of the student body of the College of Administration and Business. Dues are one dollar per quarter, and this is an official charge recognized by the College.

DATA PROCESSING MANAGEMENT ASSOCIATION

The Data Processing Management Association is a student organization affiliated with the National Data Processing Management Association; its charter was received on January 23, 1973. The organization's purposes are to encourage the interest of its members in data processing and to facilitate the exchange of information between students and professionals in data processing in their efforts to develop a better understanding.

DELTA PI EPSILON

Delta Pi Epsilon is a national honorary professional graduate fraternity in business education. The fraternity was organized at New York University in 1936. Scholarship, cooperation, and leadership in business education are the primary functions of the fraternity.

DELTA SIGMA PI

Beta Psi chapter of the professional international fraternity of Delta Sigma Pi was chartered on May 15, 1948. The purpose of the fraternity is to foster the study of business, to encourage scholarship and the association of students, to promote closer affiliation between the commercial world and students of business, to further a high standard of business ethics and culture, and to promote the civic and commercial welfare of the community.

FINANCIAL MANAGEMENT ASSOCIATION

Membership in the Financial Management Association is open to any student interested in a career in Finance, including Real Estate, Insurance, Banking, Investments, and Financial Management. The Club is devoted to the professional development of its members and to fostering improved relationship among students, faculty, and professionals in the several areas of Finance.

NATIONAL ASSOCIATION OF BUSINESS ECONOMISTS

Students enrolled in business economics or related fields are eligible for student membership in the National Association of Business Economists, the largest association of economists connected with private business. One of the purposes of the national association is to illuminate the contribution which trained economists can make in the business firm. The purpose of the Tech chapter is to provide a forum for social and professional exchange between students, faculty, and the national association.

NATIONAL COLLEGIATE ASSOCIATION FOR SECRETARIES

The Louisiana Tech Chapter of the National Collegiate Association for Secretaries was established as a charter of the national organization in March, 1962. This association is a professional organization for degree-granting collegiate institutions offering Office Administration/Administrative Services

programs on the undergraduate level and teacher education programs in the Office Administration/Administrative Services area.

OMICRON DELTA EPSILON

Omicron Delta Epsilon is one of the nation's largest academic honor societies. It was established in January of 1963 as the result of the merger between two major honor societies, Omicron Delta Gamma, which was originally founded in 1915, and Omicron Chi Epsilon, which was originally founded in 1955. Omicron Delta Epsilon is a member of the American Association of Collegiate Honor Societies and, thus, is fully recognized and accredited. It is open to students who have a 3.0 or better grade point average, graduate students in the field of Economics, the Economics and Finance Department.

PHI CHI THETA

Phi Chi Theta, a national fraternity in business and economics, was first organized in 1924. Louisiana Tech's chapter, Delta Eta, was established in 1974. The purposes of the organization are to promote the cause of higher business education and training; to foster high ideals in business careers; to encourage fraternity and cooperation while preparing for such careers; to stimulate the spirit of sacrifice and unselfish devotion to the attainment of such ends.

PI SIGMA EPSILON

Gamma Mu Chapter of Pi Sigma Epsilon evolved from the Louisiana Tech Marketing Club. PSE exists to meet a need—that of providing a collegiate organization for marketing students, educators, and professionals; and is dedicated to the building of the marketing profession.

SIGMA IOTA EPSILON

Zeta chapter of Sigma Iota Epsilon was organized at Louisiana Tech in 1949. Sigma Iota Epsilon is an honorary and professional fraternity in the management field. Its purpose is to provide stimulation and incentive to students of management, to recognize their scholastic merit, and to foster management as a profession and the development of the professional attitude toward it. The fraternity is the student division of the Academy of Management, which grants full membership to those who are interested and engaged in advancing the theory and philosophy of management through teaching, research, or publication.

SOCIETY FOR THE ADVANCEMENT OF MANAGEMENT

The local chapter of the Society for the Advancement of Management received its charter on January 24, 1948. The purpose of this society is to inspire students in business administration and to promote contact among individuals in the business world.

COUNSELING PROGRAM

Each undergraduate student is assigned to a CAB faculty member who is the student's curricular advisor. This assignment is made early during the student's first term of enrollment in the University and the counselor designated is based on the curriculum or option the student enrolls in at registration. Counselors are assigned by the CAB undergraduate division director.

The CAB counselors advise students which courses to take in future quarters during established preregistration periods, and are available during posted conference hours to advise the students on academic and career matters.

UNDERGRADUATE ADMISSIONS AND TRANSFER POLICIES

ADMISSIONS POLICIES

Louisiana Tech's College of Administration and Business seeks to assist students in determining and achieving appropriate educational objectives. Part of the CAB's responsibility to present and potential students and to the general public is to admit to the CAB only those students who, by past educational preparation and demonstrated capability, are prepared to complete their intended curriculum at the CAB's required level of quality.

In general, students who have an overall, attempted average of 2.0 or higher and are not on probation may be admitted. The complete current statement of admissions requirements may be obtained upon request to the CAB dean's office, which makes all admissions decisions and transfers students into the CAB during each registration period in accordance with policies in effect at that time.

TRANSFER POLICIES

With some exceptions, the College of Administration and Business accepts for degree credit work such as that taken by examination and at other institutions in accordance with published policies of Louisiana Tech University as stated in the general information section of the University's Bulletin. The final determination of degree credit in any CAB curriculum, is, however, made by the CAB dean's office. A complete statement of current degree credit evaluation policies may be obtained upon request from the CAB dean's office.

SCHOLARSHIP STANDARDS

Students in the CAB may carry a normal course-load, as defined by the University, except when on probation, during which term (s) the student is placed on "limited load" and may schedule a maximum of nine semester hours.

Each time CAB students are suspended, their total academic status is subject to a review by the CAB Scholastic Standards Committee. In addition to acting on appeals for reinstatement from a suspension, the Committee may impose special conditions on suspended students. The Committee may also disenroll a student from the CAB when the requirements for admission are not being met by the student in the quality of work after admission. Additionally, a student is normally "Dropped from the CAB" when an indefinite suspension, or the equivalent, has been received.

CAB GRADUATION REQUIREMENTS

To receive a degree from the CAB a student must be admitted to and spend the senior year enrolled in the CAB at the Ruston Campus. This is normally interpreted to refer to the courses specified in the senior year of the student's curriculum. The number of semester hours defined in the senior year and other graduation requirements are the same as for the University.

CATALOG REQUIREMENTS AND CHANGES

All official notices affecting CAB undergraduate students are posted on the bulletin board directly across the hall from the dean's office (CAB 106). The notices placed thereon officially update the University bulletins and are binding on students pursuing programs offered by the College as if published in the bulletins.

All CAB students enter the College under all University and CAB policies then in effect. Each student is responsible for meeting all catalog requirements for graduation, including taking courses in the proper sequence as shown in each curriculum.

When course requirements are changed in the curricula, they are to improve the education of students. Such changes are not retroactive on work already taken by admitted students but will apply on work yet to be taken, except that the total remaining hours required for graduation cannot be increased and a student is not required to take an added course not available prior to graduation or for which the specified prerequisite course (s) will not have been required.

Each time a student changes curricula or options a reevaluation of all work already taken is done in terms of that particular program's requirements. Due to the rapid advancement in knowledge, a student is permitted five years from the first admission date to complete a four-year curriculum, after which time a reevaluation of all work previously taken may be required.

Any deviations from curricular and other CAB requirements must be approved in writing in advance of the deviation (e.g., substitution of courses). Such changes must normally be recommended by the student's assigned counselor and approved by the students' academic head/director and the CAB undergraduate division director.

ELECTIVES SYSTEM IN CAB

Students are responsible for selecting courses which meet catalog requirements including electives. Certain electives are defined below. Any courses taken which are not specified in the student's program and are not specifically included in this electives policy section will be counted as non-degree courses. To be acceptable for degree credit any deviation in required or elective courses must be recommended in writing, in advance, by the student's counselor and have the written approval of the CAB undergraduate division director. In general, course substitutions are discouraged, including electives, and must have a sound justification to be approved.

CAB ELECTIVE

CAB electives may be satisfied by any course (s) offered by the College of Administration and Business approved by the student's counselor. It normally will be an advanced course (300 or 400). Some CAB electives are restricted as to choice of courses or subject areas.

LIBERAL EDUCATION ELECTIVE

This type of elective may be satisfied by any course* offered in the College of Arts and Sciences or specified courses in other colleges as follow: Psychology (any course); Botany 101; Family and Child Studies 100; Geology 111, 112; Life Sciences 456; Petroleum Engineering 200; Zoology 105 or 111, 112; and AFAS Junior-Senior level (POC) courses.

* (Note: Special problems and advanced honors courses are not permitted unless the student has a minimum of 15 semester hours preparatory work in a discipline prior to taking such a course in that discipline.)

OPTION ELECTIVE

This refers to the election of a designated group of courses by students in the Business Administration curriculum. The requirements of the option chosen will govern the courses to be taken.

RESTRICTED ELECTIVE

This refers to a type of elective in which the curriculum or option designates the area from which the course must come or indicates that the choice must come from a group of listed courses.

SCIENCE ELECTIVE

A science elective may be satisfied by any one or a combination of the following specified courses: Physics 205; Zoology

105 or 111, 112; Botany 101; Chemistry 101 and coreq. 103 or 130; Geology 111, 200; and Physics 207. While students will normally select science electives only from the foregoing list, advisors may also approve the following courses: Physics 206; Geology 112; Chemistry 102, and coreq. 104 or 131. (Special problems and advanced honors courses will not satisfy this elective; the objective of these electives is a survey knowledge of the subject area (s).)

SOCIAL STUDIES ELECTIVE

This elective is normally satisfied by any course (s) * in the following fields: Geography, History, Political Science, Philosophy, Sociology. Those courses dealing with man, the cultural development and adaptation to changing environment, are encouraged.

* (Note: Special problems and advanced honors courses are not permitted unless the student has a minimum of 15 semester hours preparatory work in a discipline prior to taking such a course in that discipline.)

REQUIREMENTS FOR A MAJOR IN ECONOMICS FOR GENERAL STUDIES STUDENTS IN COLLEGE OF ARTS AND SCIENCES

(See degree curriculum in General Studies in the College of Arts and Sciences.)

For students in the College of Arts and Sciences who wish to major in economics (and minor in a non-business field) the following courses will be required:

Semester Hours	
Economics 201, 202.....	6
Economics 312.....	3
Economics 408.....	3
Economics 437.....	3
Economics or Finance electives approved by the Head of the Department of Economics and Finance	15
TOTAL.....	30

Students selecting a major in Economics will not be permitted to earn toward graduation any additional courses in the College of Administration and Business beyond the requirement for the Economics major.

REQUIREMENTS FOR BUSINESS MINORS FOR STUDENTS ENROLLED IN OTHER TECH COLLEGES

Students enrolled in other colleges may not take a major in any area in the College of Administration and Business except economics. This statement means that no student of another college may take for degree credit any combination of courses in the College of Administration and Business whether called a minor or electives or a combination thereof, in excess of a total of 27 semester hours.

Business Foundation Minor. This minor is designed for those students in fields other than those offered in the College of Administration and Business who may want to enter the graduate program to earn a Master of Business Administration (MBA) degree. (See MBA program in the graduate section of the catalog for a description of this degree program.)

There has been a substantial demand for graduates with the MBA degree who specialized in another field in their undergraduate programs. These graduates have a specialized degree or a broad liberal arts degree outside of business and have also acquired a knowledge of business functions with emphasis on administration or management. The demand by industry has been particularly heavy for MBA graduates with

undergraduate programs in mathematics, science and engineering, but the demand also exists for MBA graduates having social sciences and other liberal arts undergraduate majors.

Students interested in this minor should elect 21 hours from among the following courses (more may be taken if desired up to a maximum of 27 hours of courses); Accounting 203, 204, 205, or 203, 204, 210; Business Law 355; Quantitative Analysis 220, 233, 333; Economics 215; Finance 318; Management 311, Marketing 300.

Minor in Accounting: Accounting 203, 204, 205, 303, 304, 305, 307, 308, 411, 412, and 413; total 27 semester hours. Students in other colleges may not major in accounting.

Minor in Business Data Processing, including Statistics. Quantitative Analysis 220, 233, 333, 338, 339, 340, 435; total 21 semester hours.

Minor in Economics. Economics 201, 202, 312; and 12 hours of Economics courses at the 300 and 400 level, to complete 21 semester hours.

Minor in Finance, including Insurance and Real Estate. Economics 215; Accounting 203, 204, 210; Finance 318; and nine other hours of Finance courses to complete 22 semester hours.

Minor in General Business. Accounting 203, 204, 210; Economics 215; Finance 318; Management 311; Marketing 300; and a 3 hour CAB elective to complete 22 semester hours.

Minor in Management, including Personnel and Industrial Management. Management 311; and 18 hours from 300 and 400 level Management courses to complete 21 semester hours.

Minor in Marketing. Marketing 300; and 18 hours from 300 and 400 level Marketing courses to complete 21 semester hours.

Minor in Office Administration. Office Administration 101, 102, 103, 210, 211, 214, 215, 216, and 307. A student who is exempt from 101 would take a total of 22 hours rather than a total of 24 hours.

UNDERGRADUATE PROGRAMS

ASSOCIATE DEGREE PROGRAMS

The objectives of two-year associate degree programs are: (1) to permit students to continue their educational development in a university-level climate; (2) to provide a curriculum of both general education and general and specific business knowledge appropriate to persons planning to take functional and trainee positions in government and industry; (3) to provide a meaningful termination point for students desiring only two years of college; and (4) to facilitate the present or future continuation of the associate degree students' education toward the baccalaureate degree.

SECRETARIAL CURRICULUM

There is a four-year bachelors degree Office Administration program discussed later. The two-year associate of science program is designed to prepare students for job entry and advancement in executive/administrative assistant positions in automated electronic office environments. For degree and course requirements, see the Division of Basic and Career Studies section of the bulletin.

BUSINESS TECHNOLOGY CURRICULUM

The primary objective of the program is to provide an educational alternative for students who desire, and need for their intended careers, basic education beyond high school, but less than a four-year college program, and some practical knowledge to help prepare them for job entry and possible

advancement opportunities. For degree and course requirements, see the Division of Basic and Career Studies section of the bulletin.

BACHELOR DEGREE PROGRAMS

Five baccalaureate degree curricula are offered by the College of Administration and Business: Accounting; Business Administration (with several options or specialties available from the Business Department); Business Economics; Finance; and Office Administration. The course requirements for these four-year programs are given in the following pages. (Note: The five curricula are given in alphabetical order with several pages of options being listed after the Business Administration curriculum. By special permission of the Dean, students may be approved for a special option in a non-CAB field. A written statement listing courses and justifying the proposed option must be submitted by the student to the Dean for consideration.)

Students enrolling in CAB programs who have already decided what curriculum or major they wish to pursue may designate that curriculum when they register. Students who have not definitely decided what curriculum they wish to pursue should write 'BA-Basic' after the word 'curriculum' on the registration packet.

All five of the baccalaureate degree programs have the following objectives: (1) to assist students to prepare personally and professionally for future roles as citizens and leaders in a complex, changing society by providing a broad education, including a background in the liberal arts and natural and social sciences; (2) to encourage students to develop their individual capabilities and the incentive for continued future learning, self-improvement, and advancement by requiring personal discipline, industry, and high-level performance; and (3) to provide an educational background sufficient for the needs of those students who are interested in, and qualified for, pursuing studies at the post baccalaureate level. Additional specific objectives are given at the beginning of each of the four-year curricula.

SCHOOL OF PROFESSIONAL ACCOUNTANCY

ACCOUNTING CURRICULA

The School of Professional Accountancy offers a four-year accounting program leading to the Bachelor of Science (B.S.) degree and a fully integrated five-year accounting program leading to the Master of Professional Accountancy (M.P.A.) degree.

The accounting profession is one of the most rapidly growing professions in the country. To meet this demand the curriculum provides a thorough education in the accounting discipline. This specialized accounting knowledge, together with the broad liberal arts, mathematics, sciences, and business background, is designed to prepare students: (1) to provide the basis for future growth and development within the accounting profession; (2) for advanced studies in accounting and other business fields; (3) to provide the educational foundation for future advancement to administrative and leadership positions; and (4) to take appropriate managerial positions in various types of business organizations and government.

The School of Professional Accountancy established by the Board of Trustees for State Colleges and Universities and the Louisiana Board of Regents is a fully accredited five-year accounting program leading to the Master of Professional Accountancy (M.P.A.) degree. The School also holds full membership in the Federation of Schools of Accountancy.

Any student enrolled in the four- or five-year accounting program must have earned a minimum of 2.5 grade point average in the Principles of Accounting Courses (Accounting 203, 204, 205) in order to continue in the accounting curriculum. The minimum acceptable grade in any undergraduate course is a 'C'. Students enrolled in the accounting program will normally be allowed to schedule a maximum of two accounting courses simultaneously in a single quarter. In the graduate phase of the M.P.A. program, any accounting course for which a grade of 'C' is earned must be repeated or the grade must be offset by an 'A' in another accounting course.

Transfer students electing this curricula will be required to take at least fifteen semester hours (all at the 500 level for the M.P.A.) in accounting courses numbered 400 and above at Louisiana Tech. Any student currently enrolled in the accounting program may not take an accounting course at another institution without the approval of the director.

PRE-PROFESSIONAL CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Liberal Education Elective*	3
Management 105**	3
Mathematics 111, or 125, 222***	6
Political Science 201	3
Psychology 102.....	3
Science Elective*	3
Social Studies Elective*	3
Sociology 201	3
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	33

Sophomore Year	Semester Hours
Accounting 203, 204, 205.....	6
Business Communication 205****	2
Economics 201, 202.....	6
English 201 or 202.....	3
Free Non-CAB Elective.....	3
Liberal Education Elective*	3
Quantitative Analysis 220, 233	6
Science Elective*	3
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	32

*See 'Elective System in CAB'.

**Students with an ACT score of 25 or greater will be allowed to take an upper level CAB elective in lieu of Management 105.

***Students who are required to take Mathematics 110 because of their Mathematics Placement Test score may use the additional hours of mathematics credit to fulfill three hours of the Liberal Education Elective requirement.

****Students having basic typewriting/keyboarding in high school are usually ready to take Business Communication 205. Students who have never had typing/keyboarding will need to take Office Administration 101 prior to taking Business Communication 205. The semester hours of Office Administration 101 will not count in the hours required for the degree.

In the evaluation of the applications for admission to the graduate year of the Advanced Professional Curriculum, consideration will be given to such things as grade point averages, grade trends, and areas of scholastic strength. Only students who have demonstrated exceptional academic performance will be admitted into the graduate year of the program. Judgment is exercised since admission decisions involve consideration of qualitative as well as quantitative factors. Some of these considerations are grades in specific college courses, total quality and quantity of prior college preparation, apparent maturity, and seriousness of purpose.

Students pursuing the M.P.A. degree may be provisionally admitted to the Graduate School at the completion of their junior year. Fifth year courses can be taken only after completion of the first four years and final admission to the graduate school has been attained. To be considered for admission to the graduate phase, students must submit an admission application, scores from the Graduate Management Admission Test (GMAT), and meet established GPA requirements.

The foregoing are general statements on admission policies. The complete current statement on admission requirements and other program requirements may be obtained upon request to the office of the Director of the School of Professional Accountancy. Students and prospective students are advised of their obligation to secure from the Director's office program information and advice on meeting all program requirements.

ADVANCED PROFESSIONAL CURRICULUM

Junior Year	
Accounting 303, 304, 305, 307, 308	12
Business Communications 305	3
Economics 312	3
English 303 or 336	3
Finance 318	3
Management 311	3
Marketing 300	3
Quantitative Analysis 333	3
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	33
Senior Year	
Accounting 411, 412, 413	9
Accounting Electives	6
Business Law 355, 410	6*
Economics 408 or 409 or 410	3
Management 495	3
Quantitative Analysis 338 or 339 or 340	3
Speech 377	3
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	33
TOTAL FOR BACHELOR'S DEGREE	131
Graduate Year	
Accounting 506 or 507, 508, 513, 517, 521	15
Accounting Electives	6
Economics 510	3
Finance 515	3
CAB Elective (non-accounting)	3
Quantitative Analysis (500 level)	3
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	33
TOTAL FOR MPA DEGREE	164

DEPARTMENT OF BUSINESS ADMINISTRATION

BUSINESS ADMINISTRATION CURRICULUM

The Business Administration Curriculum is structured to:

- (1) provide the broad education students will need for flexibility and mobility as future administrators in various possible types of organizations;
- (2) permit students to elect to complete the program in general business, thereby tailoring part of the basic program to individual educational objectives;
- (3) permit students to elect one of several available options (moderate specialties) to assist them in more adequately fulfilling the requirements of their planned initial employment; and
- (4) prepare students for advanced studies in their chosen fields.

The modern age with its rapid changes has made it essential that the future business man and woman be broadly educated in order to adjust and adapt themselves to changing methods.

Furthermore, it has been found that many students move out of their college specialty after entering business. Therefore, it is desirable to their future development that they receive training in all of the staff and functional areas of business. In this way, they will be prepared to take full advantage of opportunities that present themselves.

However, a specialty may be desirable as an entree or door into the business world. Therefore, a number of specialties are provided in the business administration program. These specialties are called options. The student may select an option at any time but should normally have chosen it by the beginning of the junior year.

Freshman Year		Semester Hours
Economics 100 or 200		3
English 101, 102		6
Liberal Education Elective*		3
Management 105**		3
Mathematics 110, 125 or 111, 222***		6
Political Science 201		3
Psychology 102		3
Science Elective*		3
Social Studies Elective		3
		<hr/>
		33
Sophomore Year		
Accounting 203, 204, 210		7
Business Communication 205***		2
Economics 201, 202		6
English 201 or 202		3
Liberal Education Elective*		3
Psychology 102		3
Quantitative Analysis 220		3
Science Elective*		3
Sociology 201		3
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		30
Junior Year		
Business Communication 305		3
Business Law 355		3
CAB Elective*		3
Economics 312		3
Finance 318		3
Free non-CAB Elective		3
Management 311		3
Marketing 300		3
Option Elective*		3
Quantitative Analysis 233, 333		6
		<hr/>
		33
Senior Year		
CAB Elective*		3
Management 495		3
Option Electives*		15
Restricted Electives*		6
Speech 377		3
		<hr/>
		30
TOTAL FOR CURRICULUM		126

* See "Electives System in CAB"

The three semester hours of Option Electives in the junior year plus the fifteen semester hours of Option Electives in the senior year permit the student to select one of the several options (specialties) shown on the following pages. These options are offered by the Business Department.

See each option for course requirements and any additional requirements (e.g., certain mathematics or science courses to be taken as electives.)

See each option for the courses listed as restricted electives.

****Students having ACT composite standard score of 25 or higher may choose not to take Management 105. Instead, they may begin their second year courses sooner. Later they will take a 300 or 400 level CAB elective to satisfy the Management 105 semester hours skipped.**

*****Counselors will individually advise each student which of the listed math courses to take. While the Mathematics 110 and 125 will satisfy the mathematics requirements for most of the options in the Business Administration Curriculum, students may qualify to take 111 and/or 222 instead of or in addition to 110 and 125. Liberal education electives may be used for such additional math courses (Note: The Management Science and Industrial Management options require Mathematics 222 or the equivalent).**

******Students having basic typewriting/keyboarding in high school are usually ready to take Business Communication 205. Students who have never had typing/keyboarding will need to take Office Administration 101 prior to taking Business Communication 205. The semester hours of Office Administration 101 will not count in the hours required for the degree.**

OPTIONS OFFERED DEPARTMENT OF BUSINESS

BUSINESS DATA PROCESSING OPTION

This group of courses is primarily designed to prepare students for careers in data processing, for work directly in computing centers or data processing departments of business and government, and for work in business systems design and analysis. It will provide students with an understanding of the analysis of business data; a knowledge of the techniques and methods of utilizing data; a basic competence in computer programming; and a familiarity with computers and peripheral equipment.

Students interested in business data processing will normally elect the following courses in this option.

	Semester Hours
Quantitative Analysis 338, 339, 435	9
Finance 422, Office Adm. 480; Marketing 435; Quantitative Analysis 422, 436 (any nine hours)	9
TOTAL.....	18

Restricted CAB Electives in the senior year:
Accounting 308; Economics 409, 437; Marketing 482; Quantitative Analysis 340, 430, 432 (any six hours)6

BUSINESS MANAGEMENT OPTION

This option extends the requirement of the Business Administration Curriculum further in the direction of general business management. Students who take this option will logically seek management trainee positions in business or industrial enterprises. The following courses will normally be elected to satisfy this option.

	Semester Hours
Management 470, 475	6
Management Electives (approved 300-400 level Management Courses)	6
Marketing 482	3
Quantitative Analysis 430	3
TOTAL.....	18

Restricted CAB Electives in the senior year:
Business Law 445; Economics 409; Marketing 425; Quantitative Analysis 435; (any six hours)6

GENERAL BUSINESS ADMINISTRATION OPTION

The Business Administration Curriculum provides the student with a broad education in business administration including courses in the fields of accounting, economics, business finance, marketing, management, business law, and quantitative analysis. This general concept of broad business administration is extended into the G.B.A. option to include an additional 18 hours of broad education for business. A course in each of two additional fields is required. These fields are insurance and real estate. One additional course is required to be selected from the fields of marketing or management, and the student is permitted to elect three additional courses in the College of Administration and Business.

Small Business is a significant part of our business way-of-life; it includes about 95 per cent of all business firms which provide about half the economic activity in the U.S. and about half the job opportunities in the private sector of the economy. By carefully selecting CAB electives the student is able to prepare for entry into a family-owned business or to begin preparation for eventually starting or buying a business. To emphasize Small Business Management, the student should select from these courses the CAB electives: Business Law 441; Marketing 435, 482; Management 340, 470; and Economics 409.

	Semester Hours
Finance 330	3
Business Law 441 or Finance 442 or 443	3
Marketing 320 or 425 or Management 446 or 465	3
CAB Electives.....	9
TOTAL.....	18

Restricted CAB Electives in the senior year:
Business Law 445; Economics 409 or 437; Management 447; Marketing 482; Quantitative Analysis 430.....6
See "Electives System in CAB"

INDUSTRIAL MANAGEMENT OPTION

This option is designed to fill a growing demand for business graduates with sufficient technical background to cope with modern management problems in business and industry. The graduate in this curriculum is qualified for employment in production planning and control, quality control, methods analysis, materials management, and related areas in service industries. The option elective courses normally to be taken are listed below:

	Semester Hours
Industrial Engineering 409	3
Management 475, 476	6
Quantitative Analysis 338, 430	6
Accounting 308; Economics 418, 419; Management 447, 472; Quantitative Analysis 339, 422, 432 (any three hours)	3
TOTAL.....	18

Restricted CAB Electives in the senior year:
Accounting 308; Economics 418, 419; Management 447, 472; Quantitative Analysis 339, 422, 432 (any six hours) ...6

Additional specific requirements for the Industrial Management Option are:

Mathematics 110, 125 and 222 or Mathematics 111 and 222 comprise the mathematics requirements for this option. If the student must take more than 6 hours of mathematics to complete Mathematics 222, the additional hours may be used as a liberal education elective (s).

Six approved semester hours in physics or chemistry are required. These courses may be taken as either science electives or liberal education electives.

MANAGEMENT SCIENCE OPTION

This option is for students who desire special training which will prepare them for positions involving quantitative methods in management decision making utilizing mathematics, business statistics, and electronic data processing.

The steadily increasing importance of management science in such areas as government, industry, and education and the rapid growth in the theory and application of management science methods to the management decision making process underscore the desirability of electing this program. This option also particularly prepares one for pursuing the management science specialty in the Master of Business Administration program.

Listed below are the option courses normally to be taken to complete this program.

	Semester Hours
Quantitative Analysis 430, 432, 433	9
Select nine hours from:	
Quantitative Analysis 435, 436; and no more than three of the nine hours from Quantitative Analysis 338, 339, 422	9
TOTAL.....	18

Restricted CAB Electives in the senior year:

Accounting 308; Economics 409, 437; Finance 422; Marketing 482 (any six hours)	6
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Additional specific requirements of the Management Science Option are:

Mathematics 110, 125 and 222 or Mathematics 111 and 222 comprise the mathematics requirements for this option. If the student must take more than 6 hours of mathematics to complete Mathematics 222, the additional hours may be used as a liberal education elective (s).

MARKETING OPTION

In the past three decades marketing has become the focal point of many business operations. Since approximately one-third of the country's work force is engaged in some form of marketing activity, the institutions of manufacturing, wholesaling, retailing, and service offer outstanding opportunities for rapid career advancement into high paying positions. The Marketing Option is designed to help prepare individuals for a wide range of possible positions in this exciting field. These positions include retailing, advertising, sales and sales management, wholesaling, product development, and marketing research. The option provides the student with a sound body of knowledge pertaining to marketing principles, decision-making, and practices. It should afford the student with the opportunity for flexibility in career choices. The courses to be taken to satisfy this option are as follows:

	Semester Hours
Marketing 473, 482	6
Twelve additional hours to be selected from: Marketing 307, 320, 420, 425, 435, 485	12
TOTAL.....	18

Restricted CAB Electives in the senior year:

Economics 409 or 437; Business Law 445 or Management 470; Quantitative Analysis 430, 432, or 433 (any six hours)	6
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For students interested in Marketing Research, Mathematics 222 is highly recommended. Likewise, Quantitative Analysis 432 or 433 is recommended as the restricted elective in the senior year for those interested in research.

PERSONNEL MANAGEMENT OPTION

This option is designed for students who are interested in human resource management, often referred to as personnel

management, and industrial relations. Students planning to take this option should use some of their liberal education electives to take additional work in the behavioral sciences such as industrial psychology, cultural anthropology, and industrial sociology. The option courses normally to be taken are as follows:

	Semester Hours
Economics 419.....	3
Finance 435	3
Management 447, 470, 472, 478.....	12
TOTAL.....	18

Restricted CAB Electives in the senior year:

Economics 418; Management 485; Marketing 482; QA 435 (any six hours)	6
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PRE-LAW OPTION

The work of successful lawyers has come to be more and more associated with the rendering of opinions and counsel on business matters such as banking, insurance, real estate titles, business contracts, etc. Corporations employ many lawyers full time for their contract and other legal work, and the young lawyer who has a degree in business will be at a distinct advantage in obtaining and doing such work.

IMPORTANT: Each law school determines its own requirements, such as admission criteria, number and type of semester hours required for entrance, etc. Students planning to enter a law school should be in communication with that school shortly after coming to college to insure the program they take will meet all requirements of the law school the student plans to attend.

Students who elect this option will finish all requirements for the Bachelor of Science degree before they enter law school.

	Semester Hours
Business Law 356	3
Business Law 441, 445 or Management 447 (any two)	6
Approved CAB elective	3
Political Science 302 or 318 (or approved CAB elective)	3
Speech 200 or other approved speech elective	3
TOTAL.....	18

Restricted CAB Electives in the senior year:

Accounting 307; Economics 409, 410, or 437; Finance 414 or 442 (any six hours)	6
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A growing number of law schools require a Baccalaureate degree for admission. However some law schools still admit after three years of college. Students wishing to select the three-year option approach are advised to take the first three years of Business Administration Curriculum after verifying acceptance by the law school on this basis.

Under the three year option, the student finishes the first three years of the Business Administration Curriculum, plus Management 495 and Speech 377, and then enters law school. After finishing one full year of law school, making at least a 'C' average on net hours earned there, the student may have transferred back to Louisiana Tech the law credits and with a combined minimum total of 126 semester hours credit receive the Bachelor of Science degree. CAB senior year residence requirements apply to the junior year of this program. Only the first bachelors degree may be earned in accordance with these requirements, which must be met precisely.

DEPARTMENT OF ECONOMICS AND FINANCE

BUSINESS ECONOMICS CURRICULUM

Economics majors are employed in all sectors of the economy—government, industry and finance, and nonprofit organizations. In addition, undergraduate training in economics is an ideal major for those contemplating continuing their formal education in public administration, general business administration, or law.

The use of economists in all areas of the economy has expanded rapidly in the past and is expected to continue in the future. Business economists perform a wide variety of tasks for governmental agencies and private organizations—such as statistical and general research, pricing and marketing, financial analysis, economic regulation, and forecasting business conditions.

To function effectively, the business economist must have both a knowledge of theory and an understanding of economic and business facts and institutions. Although not all economists specialize in statistical or mathematical analysis, an adequate knowledge of mathematics is usually required. Students can also broaden their training by combining their economics major with other areas of their interest.

Freshman Year	Semester Hours
Economics 100 or 200.....	3
English 101, 102.....	6
Liberal Education Elective*	3
Management 105**.....	3
Mathematics 110, 125 or 111, 222***.....	6
Political Science 201	3
Psychology 102.....	3
Science Elective*	3
Social Studies Elective*	3
	33
Sophomore Year	
Accounting 203, 204, 210.....	7
Business Communication 205****	2
Economics 201, 202.....	6
English 201 or 202.....	3
Liberal Education Elective*	3
Quantitative Analysis 220.....	3
Science Elective*	3
Sociology 201	3
	30
Junior Year	
Business Communication 305	3
Business Law 355	3
CAB Elective*	3
Economics 312, 408.....	6
Finance 318	3
Free non-CAB Elective	3
Management 311	3
Marketing 300	3
Quantitative Analysis 233, 333.....	6
	33
Senior Year	
CAB Electives (approved by advisor)	12
Economics Electives (approved by advisor)	9
Economics 437.....	3
Management 495	3
Speech 377	3
	30

TOTAL FOR CURRICULUM..... 126

*See "Electives System in CAB"

**Students having ACT composite standard score of 25 or higher may choose not to take Management 105. Instead, they may begin their second year courses sooner. Later they will take a 300 or 400 level CAB elective to satisfy the Management 105 semester hours skipped.

***Counselors will individually advise each student which of the listed math courses to take. While the Mathematics 110 and 125 will satisfy the requirements in the Business Economics Curriculum, students may qualify to take 111 and 222 instead of or in addition to 110 and 125. Liberal education electives may be used for such additional math courses.

****Students having basic typewriting/keyboarding in high school are usually ready to take Business Communication 205. Students who have never had typing/keyboarding will need to take Office Administration 101 prior to taking Business Communication 205. The semester hours of Office Administration 101 will not count in the hours required for the degree.

FINANCE CURRICULUM

The Finance Curriculum provides students with the background to enter a variety of financial fields. The Finance Curriculum is designed for students who have an interest in financial management (including financial position analysis, working capital management, funds acquisition and capital investment analysis), commercial banking, securities analysis, insurance, and real estate. The curriculum combines a liberal arts foundation and an in-depth coverage of business subjects as well as specialized knowledge in a variety of financial topics.

Freshman Year	Semester Hours
Economics 100 or 200.....	3
English 101, 102.....	6
Liberal Education Elective*	3
Management 105**.....	3
Mathematics 110, 125 or 111, 222***.....	6
Political Science 201	3
Psychology 102.....	3
Science Elective*	3
Social Studies Elective*	3
	33
Sophomore Year	
Accounting 203, 204, 210.....	7
Business Communication 205****	2
Economics 201, 202.....	6
English 201 or 202.....	3
Liberal Education Elective*	3
Quantitative Analysis 220.....	3
Science Elective*	3
Sociology 201	3
	30
Junior Year	
Business Communication 305	3
Economics 312.....	3
English 332 or 336.....	3
Finance 318, 319.....	6
Management 311	3
Marketing 300	3
Quantitative Analysis 233, 333.....	6
Speech 377	3
	30
Senior Year	
Business Law 355	3
CAB Electives*	12

Finance Electives.....	9
Finance 414, 425.....	6
Management 495.....	3
	33
TOTAL FOR CURRICULUM.....	126

See "Elective System in CAB"

**Students having ACT composite standard score of 25 or higher may choose not to take Management 105. Instead, they may begin their second year courses sooner. Later they will take a 300 or 400 level CAB elective to satisfy the Management 105 semester hours skipped.

***Counselors will individually advise each student which of the listed math courses to take. While the Mathematics 110 and 125 will satisfy the requirements in the Finance Curriculum, students may qualify to take 111 and 222 instead of or in addition to 110 and 125. Liberal education electives may be used for such additional math courses.

****Students having basic typewriting/keyboarding in high school are usually ready to take Business Communication 205. Students who have never had typing/keyboarding will need to take Office Administration 101 prior to taking Business Communication 205. The semester hours of Office Administration 101 will not count in the hours required for the degree.

For students interested in various specialty areas of finance, specific courses are suggested for the finance electives as follows: Managerial Finance: Finance 422, 430, and 412 or 427

Banking and Investments: Finance 422, 430, and 412

Insurance: Finance 330, 431, and 432 or 435

Real Estate: Finance 442, 443, and 444

DEPARTMENT OF OFFICE ADMINISTRATION AND BUSINESS COMMUNICATION

OFFICE ADMINISTRATION CURRICULUM

The Office Administration Curriculum is designed to prepare individuals for information/communications positions in private industries, government, and service organizations. The curriculum combines the general education in the liberal arts and sciences and business with in-depth study in oral, written, and electronic communications.

The processing of information and the communication of this information is vital to the operation of any business concern, and the graduate of the curriculum will have the background for supervisory and managerial positions in office systems, word processing and graphics, administrative services, and other communication support positions.

Freshman Year	Semester Hours
Economics 100 or 200.....	3
English 101, 102.....	6
Liberal Education Elective*.....	3
Management 105**.....	3
Mathematics 110, 125 or 111, 222***.....	6
Office Administration 102****.....	2
Political Science 201.....	3
Psychology 102.....	3
Science Elective*.....	3

32

Sophomore Year	Semester Hours
Accounting 203, 204, 210.....	7
Business Communication 205.....	2
Economics 201, 202.....	6
English 201 or 202.....	3

English 260.....	3
Liberal Education Elective*.....	3
Office Administration 210.....	3
Quantitative Analysis 220.....	3
Sociology 201.....	3
	33

Junior Year

Business Communication 305.....	3
Business Law 355.....	3
Finance 318.....	3
Free non-CAB elective.....	3
Management 311.....	3
Marketing 300.....	3
Quantitative Analysis 233, 333.....	6
Science Elective*.....	3
Social Studies Elective*.....	3
Speech 377.....	3

33

Senior Year

CAB Electives*.....	6
Economics 312.....	3
English 362 or 462.....	3
Management 495.....	3
Office Administration 307, 480, 484.....	9
Quantitative Analysis 340, 435.....	6

30

TOTAL FOR CURRICULUM.....	128
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*See "Electives System in CAB"

**Students with an ACT score of 25 or greater may choose not to take Management 105. Instead, they may begin their second year courses sooner. Later, they will take a 300 or 400 level CAB elective to satisfy the Management 105 semester hours skipped.

***Counselors will individually advise each student which of the listed math courses to take. While the Mathematics 110 and 125 will satisfy the requirements in the Office Administration Curriculum, students may qualify to take 111 and 222 instead of or in addition to 110 and 125. Liberal Education electives may be used for such additional math courses.

****Students having basic typewriting/keyboarding in high school are usually ready to take Office Administration 102. Students who have never had typewriting/keyboarding will need to take Office Administration 101 prior to taking Office Administration 102. The semester hours of Office Administration 101 will not count in the hours required for the degree.

BUSINESS EDUCATION CURRICULUM

The Business Education Curriculum and the education courses required in it are offered by the College of Education and will be found in the College of Education's section of the catalog. This program is designed to educate future business teachers for the secondary level. Students in the curriculum are enrolled in the College of Education but take their business and economics courses from the College of Administration and Business.

GRADUATE PROGRAMS

MASTER OF BUSINESS ADMINISTRATION

The Master of Business Administration (MBA) degree is offered by the College of Administration and Business. Employment and doctoral-level studies opportunities are excellent for MBA graduates. Students may enter the program from baccalaureate programs either in business or non-business

fields. For admissions, curriculum, and other information, consult the Graduate School section of the Bulletin.

MASTER OF PROFESSIONAL ACCOUNTANCY

The Master of Professional Accountancy (MPA) is offered by the College of Administration and Business. For admissions, curriculum, and other information see the earlier listing under the Professional Accounting Program and consult the Graduate School section of the Bulletin.

DOCTORAL PROGRAM

The Doctor of Business Administration (DBA) degree is offered by the College of Administration and Business. The requirements of the program are given in the Graduate School section of the Bulletin.

College of Arts and Sciences

OFFICERS OF INSTRUCTION

PAUL J. PENNINGTON, Dean
PATTERSON B. MOSELEY, Associate Dean; Director, Division of Research; Director, Division of Health Sciences.
KENNETH W. REA, Director of Graduate Studies
JOHN C. TRISLER, Head, Department of Chemistry
S. S. KILGORE, Head, Department of Clinical Laboratory Science
LOU H. STEBBINS, Head, Department of Medical Record Science
JOSEPH W. STROTHER, Director, School of Art and Architecture
PETER SCHNEIDER, Head, Department of Architecture
PATRICK P. GARRETT, Head, Department of English
RICHARD L. EZELL, Head, Department of Foreign Languages
WILLIAM Y. THOMPSON, Head, Department of History
WILEY W. HILBURN, JR., Head, Department of Journalism
B. J. ATTEBERY, Head, Department of Mathematics and Statistics
RAYMOND G. YOUNG, Head, Department of Music
WILLIAM H. BRUMAGE, Head, Department of Physics
DALE SISTRUNK, Head, Department of Professional Aviation
WILLIAM J. CONWAY, Head, Department of Social Sciences
GUY D. LEAKE, JR., Head, Department of Speech

PURPOSE

The purposes of the College of Arts and Sciences may be stated as follows: (1) to provide traditional and general education for those who desire this; (2) to offer the core courses common to many curricula of the college, such as English, mathematics, foreign languages, and social sciences; (3) to provide pre-professional training for those students who intend to study dentistry, law, medicine, or pharmacy; (4) to assist in the preparation of prospective teachers who desire to major in and teach such subjects as art, English, foreign languages, mathematics, music, natural science, social science, and speech; (5) to provide specialized training for vocations in such fields as aviation, chemistry, graphic art, journalism, medical record administration, medical technology, music and social welfare; and (6) to provide graduate training leading toward various graduate degrees.

In general, students in the College of Arts and Sciences become acquainted with the main fields of intellectual interest and in addition acquire, through their major study, a thorough knowledge of some special field. Thus, a student may obtain a liberal education, which will prove invaluable as preparation for a business or professional career as well as for richer and better living.

GARNIE W. MCGINTY CHAIR OF HISTORY

The Garnie W. McGinty Chair of History, endowed in 1977 by Dr. G. W. McGinty, former head of the Department of History at Louisiana Tech University, is occupied by a member of the department who is chosen by his colleagues on the basis of achievement in research, publication, and teaching. The McGinty Trust Fund also enables the department to publish outstanding works in the field of history.

AWARDS

ALPHA RHO CHI AWARD

This medal, which is an award from a national honor society, is presented each year to a graduating senior for his or her service to the Department of Architecture, general ability, and potential contribution to the profession.

AMERICAN INSTITUTE OF ARCHITECTS GOLD MEDAL

Awarded annually to a graduating senior, the AIA Medal recognizes outstanding scholarship and academic ability.

TAU SIGMA DELTA MEDAL

Given annually for excellence in design on the basis of a juried submission of completed student design project, this medal is presented by the Louisiana Tech Chapter of the Tau Sigma Delta Honor Society.

ARCHITECTURE FACULTY AWARDS

The faculty of the Department of Architecture annually recognizes outstanding achievement in scholarship and in design at each year level of the program through a series of awards which identify student excellence in academic or design achievement.

OUTSTANDING AVIATION STUDENT AWARD

Alpha Eta Rho presents an outstanding student award to a senior who has excelled in academics, flight training, and leadership. The recipient must be an aviation major, but does not have to be a member of the fraternity.

OUTSTANDING FLIGHT INSTRUCTOR AWARD

Alpha Eta Rho presents an outstanding flight instructor award to the undergraduate flight instructor who has demonstrated the highest degree of professionalism in his flight instructor duties.

PROFESSIONAL AVIATION FACULTY AWARD

The professional aviation faculty presents this award to a student in recognition of outstanding service rendered to the department and the university.

SPEECH PATHOLOGY AND AUDIOLOGY AWARDS

Each year the speech pathology and audiology faculty presents honor awards to outstanding speech pathology and audiology students who have excelled in academic achievement and/or clinical practicum. These awards are presented annually during the National Student Speech-Language-Hearing Association Spring Awards Banquet.

VERA ALICE PAUL AWARD

This award is named in honor Miss Vera Alice Paul, who was the first faculty member at Louisiana Tech to devote her schedule to the teaching of speech and to directing plays. The award is presented only to those individuals who uphold the highest standards of professionalism in the theatre arts and who have attained the highest levels of achievement in this field.

TECH TONY AWARDS

The Department of Speech and the Tech Theatre Players present the Tech Tony Awards for outstanding acting, directing, technical theatre, and set design at an annual banquet. Recipients are selected by the theatre faculty and members of the Tech Theatre Players.

SCHOLARSHIPS

The College of Arts and Sciences offers the following scholarships. For additional information, please contact the Office of the Dean.

ARTS AND SCIENCES ALUMNI SCHOLARSHIPS

Each year the college awards scholarships to deserving and needy students majoring in any of its curricula.

ALLIED HEALTH SCHOLARSHIPS

A number of scholarships are available to students majoring in the allied health professions of medical technology, medical record administration, speech pathology, nursing and pre-medicine.

AMERICAN INSTITUTE OF ARCHITECTS SCHOLARSHIPS

The department participates in the AIA scholarship program and generally offers between three and five of its students an opportunity to apply for AIA Scholarships and Grants. These scholarships are awarded on the basis of need and academic ability, and their amount varies according to each applicant's particular circumstances.

F. JAY TAYLOR ARCHITECTURE SCHOLARSHIP

This scholarship is awarded annually on the basis of both need and ability to a student or students in the program.

ART FACULTY SCHOLARSHIPS

Faculty members in the Department of Art have established a scholarship fund to assist deserving freshmen art students.

JOEY STROTHER SCHOLARSHIP

The parents of Joey Strother have established a memorial scholarship in the name of their son. Recipients must be pursuing a degree in art.

F. ELIZABETH BETHEA SCHOLARSHIP

Established in memory of Ms. Elizabeth Bethea, former head of the Department of Art, this scholarship is awarded annually to a student in art education.

MARY ALICE POSEY GARRETT ENGLISH SCHOLARSHIP

The Department of English offers scholarships to English majors who have demonstrated outstanding academic ability. The scholarship is available to those applicants who were graduated from Ruston High School, who major in English, and who desire to be teachers of English.

MUSIC DEPARTMENT SCHOLARSHIP

The instrumental, choir, and piano divisions offer scholarships to students without regard to their major. Recipients participate either in band and choir or are involved in piano accompanying.

JAMES E. SMITH BAND SCHOLARSHIP

Mr. James A. Smith, former band director at Louisiana Tech and composer of the official fight song 'Tech Fight,' established this scholarship in memory of his son. The applicant

must be a Tech band member of junior status. The recipient receives \$200 per quarter in his/her senior year.

H. E. RUFF PHYSICS SCHOLARSHIP

Each year the Department of Physics awards three scholarships of \$300 each to freshmen physics majors. The scholarships are made possible through gifts from alumni and friends in honor of Dr. H. E. Ruff, former head of the department.

JAMES EDWARD SKINNER SCHOLARSHIP

The family of James E. Skinner and the Alpha Eta Rho fraternity have established a memorial scholarship in his name. The recipient must have been a professional aviation student for at least one year, must have a minimum grade point average of 2.5, and must demonstrate financial need.

SPEECH SCHOLARSHIPS

The Department of Speech has a limited number of scholarships for theatre, speech communication, debate and/or individual contest speaking, and speech language pathology majors.

HELEN THOMPSON DRAMA SCHOLARSHIP

The Helen Thompson Drama Scholarship is awarded annually by the Department of Speech to an outstanding theatre major who has excelled in the theatre arts. The award was established by the family and friends of Helen Thompson, a talented actress and musician, who did much to promote theatre in North Louisiana. This award is a minimum of \$500 for the academic year.

ORGANIZATIONS

ALPHA ETA RHO

The Louisiana Tech chapter of the professional international aviation fraternity was chartered in 1970. Membership is open to all students interested in aviation. The purpose of the fraternity is to foster the study of aviation, to encourage scholarship and to further a high standard of aviation ethics, and to promote aviation in the community, state and country.

AMERICAN INSTITUTE OF ARCHITECTS (STUDENT CHAPTER)

The Student Chapter of AIA is a professional voluntary organization whose purpose is to enhance educational opportunities through close liaison and involvement with the architectural profession in the state.

LOUISIANA TECH FLIGHT TEAM

The flight team represents the university in flight safety competition under the direction of the National Intercollegiate Flying Association. Membership is open to all students possessing a pilot certificate. The team participates in regional and national air competitions annually.

NATIONAL STUDENT SPEECH-LANGUAGE-HEARING ASSOCIATION

Founded in 1972, NSSLHA is the national organization for students interested in the study of normal and disordered communication. Membership is open to any undergraduate or graduate student interested in the field of communicative disorders.

PHI ALPHA THETA

Phi Alpha Theta is an international honor society in history. The objective of Phi Alpha Theta is to promote the study of history by the encouragement of research, good teaching, and the exchange of learning among its members. It is democratic in that any student may become a member of Phi Alpha Theta

who has a creditable grade point average and the prescribed number of hours in history courses.

PHI MU ALPHA

Phi Mu Alpha is a professional music fraternity for men. It is designed to meet the creative and performance needs of its members. The local chapter was formed in April, 1964. It supplies ushers to LTCA concerts, sponsors the American Music Program, conducts clinics for surrounding schools, sponsors the Jazz Festival, and supports other musical performances.

PHI MU EPSILON

Phi Mu Epsilon is a national honorary fraternity whose purpose is to promote interest and understanding in mathematics and mathematics related fields and to provide recognition of outstanding students in mathematics. Eligible students for membership are: (1) Juniors and seniors who have completed Math. 232 and have at least a 3.0 overall grade point average; (2) Sophomores who have completed Math. 231 and are enrolled in Math. 232 unless already completed, have all A's in college mathematics courses, and have at least a 3.5 overall average; (3) Graduate students with at least a 3.0 grade average in all mathematics courses, both graduate and undergraduate.

PI KAPPA DELTA

Pi Kappa Delta is the nation's largest forensic honorary fraternity, recognizing academic excellence as well as distinction in debate and public speaking. Membership may be earned through participation in the university's speech and debate program or other recognized speech activities.

SIGMA ALPHA IOTA

The international music fraternity for women is Sigma Alpha Iota. It is an organization whose purposes are to foster interest in music and to promote social contact among persons sharing an interest in music. Membership is confined to persons interested in music in accredited colleges and universities. Sigma Alpha Iota strives to promote competency and achievement in music.

SIGMA PI SIGMA

Sigma Pi Sigma is a society to promote the study of physics. It is open to both undergraduate and graduate students and faculty. Undergraduates must be in the upper one-third of their class and have at least five quarters of physics which may be credited towards a major in physics.

SIGMA RHO ALPHA

The medical record science student organization is Sigma Rho Alpha. All medical record students are eligible for membership. The purpose of the organization is to further professional knowledge, aid in recruitment and provide for interaction of medical record science students, professional and paramedical personnel, and faculty.

SIGMA TAU DELTA

Sigma Tau Delta is the national English honor society. Its purpose is to recognize and reward excellence of achievement in linguistics or literature of the English language, to encourage the development of skills in creative or critical writing, and to foster fellowship between students and faculty of like interests. The Tech chapter, Gamma Rho, sponsors a writing competition open to all currently enrolled undergraduate and graduate students of the university, and provides cash awards to the winners.

SOCIAL SCIENCES CLUB

The Social Sciences Club is an organization of undergraduate social science majors. Emphasis is placed on promoting scholarship through extracurricular activities.

SOCIETY OF PHYSICS STUDENTS

The Society of Physics Students is open to all students interested in Physics.

SPEECH AND DEBATE CLUB

The Louisiana Tech Speech and Debate Club is open to any Tech student who is interested in improving his or her speaking skills by participating in competitive speech tournaments. The purpose of the organization is to promote excellence in speech skills, including debate, discussion, public address, oral interpretation of literature and other competitive speaking events. Members of the club are expected to participate in various tournaments held throughout the United States on sponsoring university campuses.

TAU SIGMA DELTA

Tau Sigma Delta is a national honor society for architecture and its related disciplines. The society recognizes outstanding achievement in scholarship and design, and promotes excellence in these areas. Membership is by invitation and is dependent on academic status and grade point average.

TECH THEATRE PLAYERS

Founded in 1926, Tech Theatre Players is one of the oldest student organizations on campus. The organization has a long and distinguished record of promoting excellence in the theatre arts. Membership is open to all Tech students who are interested in the theatre arts and who wish to participate in the numerous theatre productions presented each year in the university theatre.

DEPARTMENTS AND CURRICULA

The College of Arts and Sciences includes the School of Art and Architecture, and the departments of Chemistry, English, Foreign Languages, History, Journalism, Mathematics, Music, Physics, Professional Aviation, Social Sciences, and Speech. It offers curricula leading to the regular degrees of Bachelor of Arts, Bachelor of Architecture, Bachelor of Fine Arts, and Bachelor of Science in a special subject. The College of Arts and Sciences also has Divisions of Research, Health Sciences (Departments of Clinical Laboratory Science, Medical Record Science) and Graduate Studies.

Students who satisfactorily complete the first year of work in an accredited dental, law, medical, or medical technology school and who have previously finished the prescribed pre-professional curriculum in dentistry, law, medical record administration, medical technology, or medicine at Louisiana Tech University, may receive the bachelor's degree from this institution provided the usual academic standards have been maintained.

SUBJECTS OF INSTRUCTION

The subjects of instruction in the College of Arts and Sciences are graphic design, architecture, art, chemistry, English, French, geography, German, history, interior design and photography, Italian, journalism, mathematics, medical record science, medical technology, music, philosophy, physics, political science, professional aviation, Russian, sociology, Spanish and speech.

REQUIREMENTS FOR GRADUATION

Candidates for graduation in the College of Arts and Sciences must have completed an approved curriculum, including a major subject and one or more minor subjects, and must have an average grade of 'C' or better on all course credits earned. The required minor subject must be chosen with the approval of the student's advisor before the first quarter of the junior year. Twenty-one semester hours of credit are required for a minor.

Physical education requirements are to be met through physical education activity courses, or through equivalent participation in the United States Air Reserve Officers Training Corps program, or through military service. Not more than four semester hours of physical education activity courses will be counted toward degree requirements.

Foreign language requirements are met through completion of the second year program in a language. Ordinarily, this will mean that four courses in one language will be taken in sequence.

Basic mathematics requirements for students majoring in mathematics or science call for Mathematics 111 and 112; other students may substitute Mathematics 110 and three hours selected from Mathematics 114, 125 or Statistics 200.

GRADUATE PROGRAMS

Graduate degrees offered by the College of Arts and Sciences are as follows:

Master of Arts: English, History, Music, Romance Languages, Speech, Speech Pathology and Audiology; Master of Fine Arts; Master of Science: Chemistry, Mathematics, and Physics.

For admissions, curricula, and other information, consult the Louisiana Tech University Graduate School section of this catalog.

DIVISION OF HEALTH SCIENCES

The Division of Health Sciences in the College of Arts and Sciences was organized to promote and encourage education for the health care delivery system.

Baccalaureate degrees are offered in Medical Technology and Medical Record Administration. These degrees require four years of study including internship.

DEPARTMENT OF MEDICAL RECORD ADMINISTRATION

The Medical Record Administrator is the professional responsible for the management of health information systems consistent with the medical, administrative, ethical and legal requirements of the health care delivery system.

High school students planning to enter the Medical Record Administration Program should take the general college preparatory courses and acquire a proficiency in typing.

The Medical Record Administration program requires twelve quarters of study on the campus plus one quarter off campus.

Students in the medical record administration program will begin their directed practice in area hospitals in the Spring Quarter of their freshman year.

Medical Record students must be covered by professional liability insurance prior to registering for any directed practice course.

In addition to regular University fees, students beginning directed practice must provide lab coats, name pins, insurance, a recent physical examination report and their own transportation.

The one quarter preceding graduation is spent in off campus affiliations during which time the student will gain experience in a variety of health care organizations. These experiences may be clustered in the North Louisiana areas. There are additional sites in other cities in Louisiana, Texas, Mississippi and Arkansas for students who are able to spend a short period of time in these areas. Each student affiliation experience is individually planned with the student to fulfill the educational requirements within the students' financial and travel limitations. These affiliation experiences will be scheduled on recommendation of a committee of Medical Record Science faculty for students who have:

1. Completed all course work on campus.
2. Have no grade in required courses less than a 'C'.
3. Have an overall GPA no less than 2.0.

The student will return to the Tech campus for a Medical Record Seminar for two weeks prior to graduation.

A student's clinical affiliation will be terminated for lack of professional behavior and lack of adherence to ethical standards. The student who terminates a clinical affiliation without permission from the MRA program and the clinical site will not be scheduled for further clinical experiences.

Students seeking admission to the MRA program should submit an 'Application for Admission to Medical Record Science Programs' directly to the Medical Record Science Department. Application forms are available from the Medical Record Science Department, Louisiana Tech University, P O Box 3171, Ruston, LA 71272.

During the first year of enrollment in the Medical Record Administration program the student is required to take the PSB-Health Occupations Aptitude Examination.

Applicants for readmission and transfer students must meet program criteria at the time of application. If application for readmission occurs more than 3 quarters since the student was enrolled in a medical record science course, a committee of Medical Record Science faculty will evaluate to determine placement in the curriculum and remedial course work, if any, necessary.

A student wishing to minor in Medical Record Administration may do so by declaring this intention to the Medical Record Administration advisor and by completing the required courses in the Medical Record Administration program curriculum.

The Medical Record Administration Program is accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association in collaboration with the Council on Education of the American Medical Record Association. Graduates of the program are eligible to apply to write the registration examination of the American Medical Record Association. Graduates who pass this examination may use the credentials RRA-Registered Record Administrator. This program leads to the Bachelor of Science Degree.

MEDICAL RECORD ADMINISTRATION CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Health & Physical Education.....	1
Math 110.....	3
Psychology 102.....	3
Zoology 225, 226.....	4
Medical Record Science 100, 103*, 104*, 105, 106, 203, 205.....	15

32

Sophomore Year	
Medical Record Science 210*, 211, 212, 220*, 221, 225*, 230, 280	17
Math 125	3
Quantitative Analysis 220	3
Sociology 201	3
Zoology 227, 228	4
Health and Physical Education	2
	32

Junior Year	
English 201, 202	6
Medical Record Science 305, 309, 310, 314, * 315	10
Speech 377	3
Management 311	3
Elective (science)	4
Statistic 200	3
Elective (minor)	3
	32

Senior Year	
Clinical Laboratory Science 450, 451	4
Health & Physical Education	1
Medical Record Science 406, 407, 408*, 415*, 420	12
Office Administration 480	3
Quantitative Analysis 435	3
Management 470, 472	6
Elective (minor)	6
	35

TOTAL SEMESTER HOURS 131

Before choosing electives, all students must get the approval of a minor from their advisor and complete the minimum requirements for hours in the minor subject.

In choosing an elective science, it is to be remembered that this science must be one which contributes to understanding the human body and its disease processes. A minimum of one of the four hours is to be earned in a laboratory course.

*Required courses for a minor in Medical Record Administration.

DEPARTMENT OF CLINICAL LABORATORY SCIENCE

The department provides the pre-professional and professional courses for students majoring in Medical Technology, necessary for their national credentialing as baccalaureate medical technologists.

The Department of Clinical Laboratory Science in addition provides guidance and a core curriculum for those students desiring a career in the technologies associated with medical diagnosis or treatment, i.e., cytotechnology, nuclear medicine technology, respiratory therapy, histological technology, physicians assistant, occupational therapy, physical therapy, surgical assistant and radiologic technology.

The core curriculum for the specialties referred to in the above paragraph consists of six hours of English, six hours of algebra and trigonometry, eight hours of biology with lab (zoology or botany), eight hours of chemistry with lab, and six hours of electives in the behavioral or social sciences.

A student may minor in Clinical Laboratory Science by declaring this intention to the Clinical Laboratory Science advisor and completing 21 hours of recommended course work.

The medical technologist needs a thorough background in chemistry, biology and physics. The major portion of the work

consists of performing tests on the blood and body fluids using automated methods. The Bachelor of Science Degree requires 129 or 130 semester hours with the following distribution:

Humanities, 25 semester hours

Prerequisite science courses, 34 semester hours

Advanced sciences and technical courses, 40 or 41 semester hours

Clinical training in one of our C.A.H.E.A. approved affiliate hospitals* during the senior year, at least 30 semester hours. (The student will register at Louisiana Tech each quarter and will pay fees.)

At the beginning of the first quarter of the junior year the student will be informed as to whether or not he or she will be admitted to the clinical year. This decision will be based upon the student maintaining a grade point average of 2.5 with no grade less than 'C' in a required course and the recommendation of the clinical year committee composed of clinical laboratory science faculty.

After admittance to the clinical year the student will be informed by the third quarter of the junior year the site at which the clinical year training will take place.

After completion of the clinical year, the student is awarded a Bachelor of Science degree in Medical Technology and is eligible for professional registration awarded after passing the registry examination.

*MEDICAL TECHNOLOGY CLINICAL TRAINING SITES:

Alton Ochsner Medical Foundation, New Orleans, LA
Baylor University Medical Center, Dallas, TX.
Lake Charles Memorial Medical Center, Lake Charles, LA
Our Lady of the Lake Medical Center, Baton Rouge, LA
Rapides General Hospital, Alexandria, LA
St. Francis Cabrini Hospital, Alexandria, LA
St. Francis Medical Center, Monroe, LA
St. Patricks Medical Center, Lake Charles, LA
Schumpert Medical Center, Shreveport, LA
Southern Baptist Medical Center, New Orleans, LA
Veterans Administration Hospital, Shreveport, LA

MEDICAL TECHNOLOGY CURRICULUM

Freshman Year		Semester Hours
Chemistry 101, 102, 103, 104		8
English 101, 102		6
Mathematics 111 or 230, 112 or 231		6
Clinical Laboratory Science 110		1
Bacteriology 212, 213		4
Zoology 111, 112		4
Medical Record Science 103		3
		32

Sophomore Year		
English 201, 202		6
Zoology 115, 116		4
Zoology 202 or Bacteriology 406*		4
Chemistry 250, 251, 252		6
Chemistry 253, 254		2
Foreign Language		6
Clinical Laboratory Science 245, 341		6
		34

Junior Year		
Clinical Laboratory Science 242, 346, 448, 449, 452		10
Chemistry 351, 352, 353, 354		8
Zoology 401		3
Social Science		6

Physics 209, 210, 261, 2628

35

Senior Year

The student and Program Director will choose at least 30 semester hours from Clinical Laboratory Science courses numbered 460 through 48230

30

*Pre-Med students should select Zoology 202.

TOTAL SEMESTER HOURS131

PRE-OPTOMETRY

At the request of the Louisiana State Association of Optometrists, it is called to the attention of the interested student that the present offerings of Louisiana Tech University enable any student to earn the credits necessary to satisfy the pre-optometry curriculum requirements of the professional optometry schools. In general, these requirements are as shown below, but specific correlation should be made with the professional school one expects to attend.

Minimum Semester

Subject	Hours Credit
English 101, 201, 202.....	9
Mathematics 111, 112, 230, 231.....	12
Zoology 111, 112, 115, 202.....	12
Botany 101, 104.....	4
Bacteriology 210, 406.....	7
Chemistry 101, 102, 103, 104, 250, 251, 253.....	13
Physics 209, 210, 261, 262.....	8
Psychology 102, 300.....	6
Sociology 201.....	3
BioChemistry 351, 352, 353, 354.....	8
History 201, 202.....	6

HOURS REQUIRED88

DEGREE IN GENERAL STUDIES

If a student wishes to follow a generalized curriculum, the student may pursue a major in General Studies and a concentration (or concentrations) in a specific discipline(s). The curriculum must be approved by the dean of the College of Arts and Sciences and must consist of a total of not less than 126 semester hours. Students pursuing a degree in General Studies may take no more than 27 hours of business courses.

While pursuing the General Studies Curriculum the student will be registered in the College of Arts and Sciences, and upon completion of all requirements he will be granted the degree of Bachelor of General Studies, a Liberal Arts and Sciences degree, upon recommendation of the Dean of the College of Arts and Sciences.

A student may earn an Associate of General Studies degree, a Liberal Arts and Sciences degree, by completing the following courses: English 101 and 102, six semester hours; mathematics, three semester hours; social science elective, six semester hours; natural science elective, six semester hours; general electives, twenty-seven semester hours; and a concentration of 15 semester hours in a subject matter field approved by the Dean of the College of Arts and Sciences. Total semester hours in the curriculum - 63.

SCHOOL OF ART AND ARCHITECTURE

The School of Art and Architecture offers the following degrees:

Department of Art:

Bachelor of Fine Arts (B.F.A.) in Graphic Design, Interior Design, Photography, and Studio

Master of Fine Arts (M.F.A.) in Graphic Design, Interior Design, Photography, and Studio

Department of Architecture:

Bachelor of Arts (B.A.) in General Studies (four year pre-Architecture)

Bachelor of Architecture (B.Arch. - five year professional degree that combines the four year pre-Architecture degree with an in-depth one year program of study)

Requirements For A Minor In Art

A minor in art consists of 21 hours approved by the Director of the School of Art and Architecture.

Bachelor Of Arts In Education

See College of Education.

Objective

As a unit within the framework of the College of Arts and Sciences and within the School of Art and Architecture, the purpose of the Department is the blending of liberal studies to serve as an underpinning for involvement with and concentration in the specific professional art disciplines. The Department's intentions are to prepare and produce students who are equipped to function capably in their chosen area, whether the area be the studio arts, graphic design, interior design, or photography.

The collective purpose of Louisiana Tech University's Department of Art is to present curricula designed to prepare the students (and which allows the students to prepare themselves) for a visual arts oriented career.

Our overall department purposes are to provide the student with (1) a series of guided experiences in his/her artistic heritage, and in materials and their historical/contemporary uses, leading towards the development of a personal aesthetic, and to (2) encourage and foster the development of artistic mastery. We feel that these objectives, implemented by a perceptive and knowledgeable faculty, provide our students with the attitudes and skills needed to prepare themselves as maturing artists and professionals.

Prerequisites

All courses must be taken in sequence as outlined in the Major Curriculum Requirements for each area. All courses in any sequence have the prerequisite of corresponding lower level courses. 100 level courses are prerequisites for 200 level courses, 200 level courses are prerequisites for 300 courses and 300 courses are prerequisite for 400 level courses.

Bachelor Of Fine Arts

This program is designed to train the professional artist. The curriculum combines a knowledge of techniques and general education. The candidate is required to complete the prescribed courses in the College of Arts and Sciences, and the remainder must be taken in the field of art. Total hours required, Graphic Design, Studio, Photography, 130; Interior Design, 131.

BACHELOR OF FINE ARTS CURRICULUM

GRAPHIC DESIGN

Students entering this field of study will pursue courses in the core curriculum during their first two years. These include drawing, designing, art history, painting, and electives of the

student's choice. The junior and senior years are spent specializing in the Graphic Design area. Courses include Typography, layout, production techniques, illustration, package design, advertising campaign, photography, and independent study projects. Much of the senior year is directed toward the preparation of a portfolio which will provide evidence to a potential employer of the graduate's talents and expertise in the graphics and visual communication field. Upon graduation the students are qualified to perform professionally in a wide variety of graphic-related industries; television, print advertising, newspaper, magazine and book publishing, specialized studios, and a wide variety of related activities.

Freshman and Sophomore Years	Semester Hours
Art 105, 115, 116, 125, 126, 117, 215, 216, 225, 120, 121, 170, 173	37
English 101, 102, 201, 202	12
Mathematics 114 plus 3 hours Math elective	6
Science	3
Social Science	6
Art History	6
Electives	9
	70

Junior and Senior Years	Semester Hours
Art	48
Electives	6
Science	6
	60

TOTAL SEMESTER HOURS 130

INTERIOR DESIGN

In keeping with Art department objectives, the Interior Design curriculum is designed to prepare aspiring students to take their place as leaders in the design community. It prepares students to accept responsibility for addressing issues and solving complex problems of current and future interior environments. The curriculum is designed to enable students to develop creative imaginations, technical knowledge, graphic communication skills, social and business insight and individual integrity. The curriculum is built on a strong foundation of art and architecture. It is further reinforced by courses in arts and sciences, business and administration and life and applied sciences.

In addition to preparing students for becoming high quality entry level interior designers upon graduation, the curriculum academically prepares them for the National Council for Interior Design Qualification exam en route to becoming fully accredited interior designers. The Interior Design program is accredited by the Foundation for Interior Design Education Research (FIDER).

Field trips are an important part of the Interior Design course structure and students are required to participate in these trips. The expense of these trips is in addition to the tuition and should not exceed \$500 per year.

Freshman and Sophomore Years	Semester Hours
Architecture 122, 132, 210, 220	10
Art 105, 115, 116, 117, 125, 126, 120, 121, 215, 216, 250, 366, 367	37
English 101, 102, 201, 202	12
Mathematics 114 plus 3 hours Math elective	6
Science Electives	3
	68

Junior and Senior Years	Semester Hours
Art 352, 353, 354, 355, 356, 457, 458, 451, 452, 456	36
Art Electives	9

Social Science and Humanities	9
Science Electives	3
Electives	6
	68

TOTAL SEMESTER HOURS 131

PHOTOGRAPHY

In the photography program at Tech, majors are considered art students first and as such are involved in a common curriculum with other art students. The emphasis is on the use of photographic materials as a means of self-expression and discovery. Basic and advanced technical knowledge is taught; however, the primary thrust is on the photographic image as one of the moving forces in the twentieth century.

Through lectures, demonstrations, practical lab work, and problem solving, the student develops into a well-rounded artist and craftsman. The equipment and facilities provided by the Department allow the student an opportunity to master the various tools and techniques of photography.

Freshman and Sophomore Years	Semester Hours
Art 105, 115, 116, 125, 126, 170, 117, 173, 215, 216, 270, 120, 271, 370	43
English 101, 102, 201, 202	12
Mathematics 114 plus 3 hours Math elective	6
Art History	6
Science	3
	70

Junior and Senior Years	Semester Hours
Art	42
Electives	6
Science	3
Social Science and Humanities	9
	60

TOTAL SEMESTER HOURS 130

STUDIO

The recently expanded studio program provides areas of concentration in the following: drawing, painting, ceramics, sculpture, and printmaking.

The junior, senior and graduate programs consist of a flexible curriculum which is primarily structured around studio assignments and individual criticism coupled with group lectures and seminars.

Freshman and Sophomore Years	Semester Hours
Art 105, 115, 116, 117, 125, 126, 120, 121, 215, 216, 225 228, 229, 240, Studio Major	43
English 101, 102, 201, 202	12
Mathematics 114 plus 3 hours Math elective	6
Electives	6
Science	3
	70

Junior and Senior Years	Semester Hours
Art	24
Studio Major	18
Electives	6
Science	3
Social Science and Humanities	9
	68

TOTAL SEMESTER HOURS 130

ALL STUDIO COURSES REQUIRE THREE CLOCK HOURS FOR EACH ONE CREDIT HOUR.

1. Students must achieve a 2.0 average in the following art 'core' curriculum courses, prior to beginning their professional courses: Art 115, 116, 117, 120, 125, 126, 215, 216, 225. Obtain an area curriculum sheet for proper sequencing of these courses.

2. Once the student has completed the above 'core', no grade of 'D' in the professional area courses will apply towards the BFA degree.

ARCHITECTURE CURRICULUM

The five-year curriculum in architecture offered by the Department is a professional degree program, and is consequently comprehensive, rigorous and demanding. It is designed to provide students with a balanced set of educational experiences through which the inter-related influences of history, theory, context, pragma, technology, and practice on the form of the built environment are investigated and, ultimately, understood.

The program leads to the award of the degree of Bachelor of Architecture on completion of its curricular requirements, and this degree is accredited by the National Architecture Accrediting Board. As such the program prepares the student for professional internship and, after completion of the required internship period, the Architects Registration Examination.

Each student majoring in architecture is to complete the curriculum which follows. Students transferring into the program from another accredited institution are required to earn a minimum of 31 credit hours from Louisiana Tech to be eligible for the award of the Bachelor of Architecture degree, and additional coursework beyond the 173 hours stipulated in the curriculum may be required in order to meet equivalency requirements.

BACHELOR OF ARCHITECTURE

Freshman Year-Introductory Sequence	Semester Hours
Architecture 110, 111, 120, 121, 122, 130, 131, 132.....	16
English 101, 102.....	6
Mathematics 111, 112, 220.....	9
Social Sciences (Geography, History, Philosophy, Political Science or Sociology) (Elective)	3
	34

Sophomore Year-Introductory Sequence	
Architecture 210, 220, 221, 230, 231.....	15
Engineering Mechanics 206.....	3
Art 366, 367.....	6
Behavioral Science or Social Science (Geography, History, Philosophy, Political Science, Sociology, or Psychology) (Elective)	3
English 201 or 202.....	3
Physics 205, 206.....	6
	36

Prerequisites for entrance into the third and subsequent years of the program are a curriculum grade point average of at least 2.50, and completion of all 100/200 level coursework.

Junior Year-Professional Concentration	Semester Hours
Architecture 232, 310, 320, 321, 330, 331.....	19
Civil Technology 372.....	3
Engineering Mechanics 207.....	3
Electives.....	5
Electrical Engineering 326.....	3
English 336 or 484.....	3
	36

Senior Year-Professional Concentration	
Architecture 410, 411, 420, 430, 431.....	16
Civil Technology 471, 473, 474.....	9

Electives.....	8
Speech 377.....	3
	36

Prerequisites for admission to the fifth year of the program are a curriculum grade point average of at least 2.50, completion of all coursework required in the first four years of the curriculum, and approval by the Department Head of a formal application for admission to the fifth year of study. This application is to be submitted to the Department Head by the end of the fourth week of the spring quarter, and must be supported and endorsed by the student's academic advisor and two additional members of the Departmental Faculty.

Fifth Year-Professional Concentration	
Architecture 470, 471, 472, 473, 480, 481, 490, 491.....	22
Electives.....	9
	31

TOTAL SEMESTER HOURS.....	173
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DEPARTMENT OF CHEMISTRY

The Department of Chemistry offers two curricula leading to the Bachelor's degree.

Pre-medical and pre-dental students in Arts and Sciences utilize the B. A. Chemistry curriculum to fulfill the requirements for entrance into medical or dental school.

The B. S. Chemistry curriculum degree provides for a broader background in chemistry and leads to a degree which is certified by the American Chemical Society.

The pre-pharmacy curriculum is a two year course of study designed to prepare students entering a professional pharmacy program.

CHEMISTRY CURRICULUM (B.A.)

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104.....	8
English 101, 102, 201.....	9
Health & Physical Education.....	2
Mathematics 111, 112, 230.....	9
Social Science Elective.....	3
	31

Sophomore Year	
Chemistry 250, 251, 252, 253, 254.....	8
English 202 or 303.....	3
Health & Physical Education.....	2
Mathematics 231, 232.....	6
Modern Foreign Language.....	6
Social Science Elective.....	3
Electives.....	6
	34

Junior Year	
Chemistry 205, 381.....	7
Physics 201, 202 or 209, 210 and 261, 262.....	8
Social Science Electives.....	6
Electives.....	12
	33

Senior Year	
Chemistry 311, 312, 313, 314.....	8
Chemistry Elective (400 level).....	3
Electives.....	21
	32

TOTAL SEMESTER HOURS.....	130
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CHEMISTRY CURRICULUM (B.S.)

Freshman Year	Hours
Chemistry 101, 102, 103, 104	8
English 101, 102.....	6
Health and Physical Education	2
Mathematics 111, 112, 230.....	9
Social Science*	6
	31
Sophomore Year	
Chemistry 250, 251, 252, 253, 254	8
Health and Physical Education	2
Modern Foreign Language.....	6
Mathematics 231, 232, 330.....	9
Physics 201, 202, 261, 262	8
	33
Junior Year	
Chemistry 205, 311, 312, 313, 314, 381	14
English 202, 303.....	6
Math 308 or 350.....	3
Social Science*	3
Electives.....	6
	32
Senior Year	
Arts and Sciences 435	2
Chemistry 409, 420, 424, 466, 481	16
Physics 410.....	4
Social Science* or Economics Elective.....	3
Electives.....	8
	33

TOTAL SEMESTER HOURS 129

*Geography, History, Political Science, Sociology.

PRE-PHARMACY CURRICULUM (Two Year)

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
Economics 215.....	3
English 101, 102.....	6
Health and Physical Education	2
Mathematics 111, 112, 230 or 220.....	9
Zoology 111, 112	4
	32
Sophomore Year	
Accounting 203, 204.....	4
Chemistry 250, 251, 252, 253, 254	8
Physics 209, 210, 261, 262	8
Sociology 410	3
Electives*	13
	36

TOTAL SEMESTER HOURS 68

* A minimum of six hours credit to be selected from the areas of political science, history, psychology, or sociology. A minimum of eight hours to be selected from art, English, foreign languages, music, philosophy, speech and geography.

DEPARTMENT OF ENGLISH

English Exemption and Credit Examination

Any high school graduate whose ACT score was a composite 26, or above, qualifies to take the English Exemption Examination which will be given at the beginning of each quarter in each academic year. The examination will consist of grammar, punctuation, spelling, and composition. Credit for English 101

will be given to those students who successfully pass the examination which will be administered by the English staff.

Requirements For A Major in English

Each student in the Department of English is required to follow the curriculum for English. Not later than the end of the sophomore year, each student must, with the approval of the head of the Department, choose major and minor fields of study and the rest of the program of work for the junior and senior years. This program leads to the Degree of Bachelor of Arts.

A major in English consists of 30 semester hours, which must include English 101, 102, 201, 202, 332, 336, 413 or 414 or 440, 416 or 417, 403 or 404 and 415. Students are asked to keep abreast of the changes in the curriculum requirements.

Requirements For A Minor in English

A minor in English consists of 21 semester hours including English 101, 102, 201, 202, 415, and six additional semester hours of English. Students are asked to keep abreast of the changes in the curriculum requirements.

Requirements for a Major in Technical Writing

A major in Technical Writing consists of 30 semester hours which must include English 101, 102, 201 or 202, 260 or 303, 363, 460, 462, 464, and six additional hours of Technical Writing courses. This program leads to the Degree of Bachelor of Arts in Technical Writing.

Requirements for a Minor in Technical Writing

A minor in Technical Writing consists of English 101, 102, 201 or 202, 260 or 303, and nine additional hours of 300 or 400 level Technical Writing courses.

ENGLISH CURRICULUM

Freshman Year	Semester Hours
English 101, 102; 201 or 202.....	9
History 101, 102.....	6
History 201 or Political Science 201	3
Mathematics 111, 112 or 110, 114.....	6
Science	4
Health & Physical Education	2
Elective	1
	31
Sophomore Year	
English 201 or 202.....	3
History 202 or Political Science 302	3
Foreign Language	6
Science	8
Speech 110.....	3
Music 330.....	3
Health & Physical Education	1
Electives.....	9
	36
Junior Year	
English 332, 336.....	6
English 413 or 414 or 440.....	3
English 416 or 417.....	3
Foreign Language	6
Health & Physical Education	1
Electives.....	14
	33
Senior Year	
English 403 or 404.....	3
English 415.....	3
Electives.....	24
	30

TOTAL SEMESTER HOURS 130

Three quarters constitute an average academic year.

*Students choosing Mathematics 111 must continue with Mathematics 112.

The student is required to take four hours of activity courses in Health and Physical Education.

The 12 hours of required credit in foreign language must be in a single language.

In choosing electives the student should remember the following points: first, complete a minimum of 30 hours in English; second, get the approval of his/her minor from the head of the department; and third, must meet the minimum requirements in hours for the minor subject.

TECHNICAL WRITING CURRICULUM

Freshman Year	Semester Hours
English 101, 102, 201 or 202.....	9
History 101, 102 or 201, 202.....	6
Mathematics 111, 112.....	6
Psychology 102.....	3
Engineering 151.....	3
Physical Education.....	3
	30
Sophomore Year	
English 260 or 303, 363.....	6
Foreign Language.....	6
Mathematics 220.....	3
Chemistry 130.....	3
Economics 215.....	3
Physical Education.....	1
Electives.....	9
	31
Junior Year	
English 460, 462, 464.....	9
Foreign Language.....	6
Physics 209, 210.....	6
Technical Specialization Courses.....	6
Electives.....	10
	37
Senior Year	
Technical Writing 300 or 400 level courses.....	6
Technical Specialization Courses.....	15
Electives.....	12
	33
TOTAL SEMESTER HOURS.....	131

DEPARTMENT OF FOREIGN LANGUAGES

Credit/Placement Examination

Students may earn credit for beginning and intermediate foreign language courses (100 and 200 level) by passing credit examinations. Students with three or more years of high school credit and native speakers should consult the department head before registration.

Students who have completed credits in a foreign language must take the placement examination before enrolling in an elementary class in that language. The examination is given each quarter.

Foreign Language Requirements

All students are advised to complete a year's sequence of their foreign language courses without unnecessary time interval between courses. Regulations require completion of a language requirement in the same language.

Majors and Minors

Minors in French, German and Spanish consist of 21 hours in those languages. Majors in French and Spanish consist of 30 hours above the 100 level. Students pursuing these majors should consult with the department head concerning specific plans available for use of electives, minors and second areas to strengthen their major and career plans.

English as a Foreign Language (EFL). The EFL program prepares international students whose native language is not English for admission to the university's curricula. To gain admission to EFL international students must have the equivalent of a 2.5 grade average. Students are placed in instructional levels by means of the TOEFL and placement examinations. Upon successful completion of TOEFL and EFL Level IV requirements, international students may be transferred to the appropriate area of Basic and Career Studies.

FRENCH CURRICULUM

Freshman Year	Semester Hours
French 201, 202.....	6
English 101, 102.....	6
Science.....	4
Health and Physical Education.....	2
History 101, 102.....	6
Mathematics 111, 112.....	6
	30
Sophomore Year	
French 301, 302.....	6
French, upper division.....	3
English 201, 202.....	6
Science.....	4
Electives.....	12
History 201 or Political Science 201.....	3
	34
Junior Year	
French 304, 305.....	6
History 202 or Political Science 302.....	3
Science.....	4
French, upper division.....	3
Mathematics 111, 112 or 107, 108, 109.....	6
Minor, second area.....	15
Health and Physical Education.....	2
	33
Senior Year	
Music 330.....	3
French, upper division.....	3
French 470.....	3
Minor, second area.....	23
	32
TOTAL SEMESTER HOURS.....	129

SPANISH CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Mathematics 111, 112.....	6
Spanish 201, 202.....	6
History 101, 102.....	6
Science.....	4

Health and Physical Education	2
.....	30
Sophomore Year	
English 201, 202.....	6
Spanish 301, 302	6
History 201 or Political Science 201	3
Science	4
Spanish (upper div.)	3
Electives	12
.....	34
Junior Year	
Spanish (upper div.)	9
Health and Physical Education	2
History 202 or Political Science 302	3
Minor, second area.....	15
Science	4
.....	33
Senior Year	
Science	4
Minor, second area.....	23
Spanish (upper div.)	6
Music 330.....	3
.....	32
TOTAL SEMESTER HOURS	129

In choosing electives, the student should remember that each person is required to complete a minor in a subject approved by the head of the department. Students should request guidance in choosing from among the many courses at Tech which provide professional complements to Foreign language study.

DEPARTMENT OF HISTORY

Requirements For A Major

Thirty semester hours in history constitute a major in the Department of History. Every history major must have a minor, normally twenty-one hours in a related field, chosen after consultation with the department head and, if necessary, the head of the department in which the student wishes to minor. Every major will consult with his advisor during each registration period and a throughout the term as need arises. This program leads to the Degree of Bachelor of Arts.

The Garnie W. McGinty Chair of History, endowed in 1977 by Dr. G. W. McGinty, former head of the History Department, is currently occupied by a member of the department. The McGinty Trust Fund also enables the department to publish works on Louisiana history.

Requirements For A Minor

History 101, 102, 201, and 202 plus nine hours of advanced history taken during the junior and senior years constitute a minor.

HISTORY CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Foreign Language	6
Geography 203 or 230	3
History 101, 102.....	6
Mathematics 110 and 114 or 125.....	6
Health & Physical Education	3
.....	30
Sophomore Year	
English 201, 202.....	6

Foreign Language	6
History 201, 202.....	6
Health & Physical Education	1
Science	8
Sociology 201, 202	6
.....	33
Junior Year	
Economics 200, 215.....	6
History 300 or 400 level course.....	9
Electives.....	9
Political Science 201, 302	6
Science	4
.....	34
Senior Year	
History 300 or 400 level course.....	9
Electives.....	23
.....	32
TOTAL SEMESTER HOURS	129

*Mathematics 111 and 112, each three hours credit, may be taken in place of Mathematics 110 and 114 or 125.

DEPARTMENT OF JOURNALISM

Requirements for a Major

The 31 semester hours required for a major in journalism are Journalism 101-102, Journalism 310-311, Journalism 320 and Journalism 400, and 13 hours in advanced courses numbered in the 300 and 400 series, including a total of 8 hours of Journalism 350, 353 and 355. This program leads to the Degree of Bachelor of Arts. For a minor, the journalism student must complete 21 hours in an additional area.

Requirements for a Minor

For students in other departments Journalism 101, Journalism 102, Journalism 310 and 12 hours of advanced journalism courses, numbered in the 300 and 400 series, including any two courses in practical journalism, will constitute a minor in journalism.

Proficiency in spelling and grammar and an ability to type are essential to successful journalism-related work. Students weak in those subjects are discouraged from enrolling in journalism as a major or minor.

The University Newspaper

Practical experience in newspaper work is afforded the journalism students through their work as staff members of "The Tech Talk," the university newspaper. In addition to their editorial work on the newspaper staff, the journalism students are encouraged to gain experience through page make-up, etc.

Journalism Department Scholarships

Student Publication Service Scholarships

These scholarships are service-based and are awarded basically to editors of The Tech Talk.

Ten or more scholarships available each year.

JOURNALISM CURRICULUM

English 101, 102, 201, 202.....	12
Foreign Language (same language)	12
Health & Physical Education (one-hour courses)	4
Journalism.....	31
Math.....	6
Natural Sciences (including a one-hour lab)	12
Economics 215.....	3
Geography 230	3

History 201, 202 plus three additional history hours.....	9
Political Science 201	3
Minor	21
Electives	14

TOTAL SEMESTER HOURS 130

DEPARTMENT OF MATHEMATICS AND STATISTICS

The courses in the department are designed as follows: (1) to provide general disciplines in mathematics in the core curriculum; (2) to serve the requirements of students pursuing a specialized curriculum in business, education, engineering, etc.; and (3) to provide students majoring in mathematics a thorough preparation for graduate mathematics or employment in industry or education. This program leads to the Degree of Bachelor of Science.

Prior to registration in Mathematics 230 a student majoring in mathematics from the College of Arts and Sciences, a student majoring in mathematics from the College of Education, or a student from the College of Engineering not having had high school geometry will be required to have credit in Mathematics 113.

Mathematics Placement by Mathematics Placement Test

Each beginning student prior to registration is required to take a placement test administered by the Mathematics and Statistics Department. Students along with advisors will determine the beginning mathematics course based on the placement test score. Placement test scores will be made available to the student's advisor.

Credit will not be given for courses bypassed. If the student desires credit for bypassed courses or others, provision is made for credit by examination. See Section "Credit by Examination" in this bulletin.

Requirements for a Major

Each student majoring in mathematics will be assigned an advisor from the members of the Mathematics and Statistics Department staff. This staff member will serve as the student's advisor throughout his/her college career. The student is requested to meet with his/her advisor at least once during each quarter, at which time courses for the following quarter will be decided upon.

Each mathematics major is required to complete the mathematics curriculum which follows and to complete a minor. The minor requirements are listed under the department concerned. An individualized study project for one to three semester hours is recommended for a major.

Students who wish to obtain a more intensive degree program with an emphasis in Statistics-Mathematics-Engineering will not be required to declare a minor if they earn credit for the following courses: (1) Statistics 418, Mathematics 414 and 440; (2) any three of the following courses: Statistics 428, 448, Mathematics 405, 407, 415, 441, 445; (3) six semester hours in the College of Engineering which are approved by the student's advisor. Note: No course may count toward the required mathematics and statistics courses in the Mathematics curriculum and also the Statistics-Mathematics-Engineering Option.

Requirements for a Minor

Students in other departments who wish to minor in mathematics are required to take Mathematics 111, 112, 230, and in addition 12 semester hours earned in statistic courses or mathematics courses numerically above Mathematics 222 but excluding Mathematics 303, 304, and 307.

MATHEMATICS CURRICULUM

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
English 101, 102	6
English 201 or 202	3
Mathematics 230, 231, 232	9
History 101 and 101 or 201 and 202	6
	32

Sophomore Year	
Computer Science 102, 108	5
Electives from History, Geography or Pol. Sci.	6
Mathematics 308, 330	6
Mathematics or Statistics Elective*	3
Physics 201, 202, 261, 262	8
General Elective	6
	34

Junior Year	
Computer Science 201	3
Foreign Language	6
Mathematics 318, 350	6
Mathematics or Statistics Elective (above 307)	6
Science (Electives)	3
General Electives	9
	33

KP Senior Year	
English 303	3
Mathematics 340, 413	6
Mathematics or Statistics Elective (above 400)	3
General Electives	18
Science Elective	3
	33

TOTAL SEMESTER HOURS 132

* Mathematics elective must be numerically above 307.

DEPARTMENT OF MUSIC

The primary purpose of the Department of Music is to provide its students with a well rounded education, thus preparing them for a professional and/or teaching career in one of the many branches of music. The department strives to combine the high standards of performance characteristic of the conservatory, the scholarly approach to music of the academically oriented university, the proficiency in pedagogical skills and educational research associated with the leading teacher-training institutions, as well as rendering service to the university, local and state communities. The specific departmental objectives (as set forth in the Louisiana Tech University Music Handbook and curriculum guides) are designed to meet certification requirements as established by the Louisiana State Department of Education, the Louisiana Board of Regents, and the accreditation requirements of the National Association of Schools of Music.

Transfer students are given validation requirements in theory and in their applied areas.

Students desiring to major in music will elect one instrument or area as a major from the following: piano, voice, violin viola, violoncello, string bass, guitar, flute, oboe, bassoon, clarinet, harpsichord, saxophone, trumpet, horn, trombone, euphonium, tuba, percussion, or vocal, or instrumental music education as a major.

The Department of Music offers the following degrees:

Bachelor of Arts

Bachelor of Fine Arts

In cooperation with the College of Education, the Bachelor of Arts and Master of Arts degrees are offered in the curriculum Music Education.

Music Minor Program

The Music Minor Program is designed for those who have a strong interest in music as a secondary subject.

The requirements are as follows:

32 semester hours - 16 applied music; 16 basic music

Basic music to include: 6 hours Theory; 6 hours Literature & History; 1 hour Conducting; 1 hour Ensemble; 2 hours music academic elective

Applied music to include 16 hours in two or more areas

Ensembles

VOCAL:

University Chorus; Concert Choir; Tech Chorale;

INSTRUMENTAL:

Symphonic Band; Concert Band; Marching Band; Jazz Band; Instrumental and Percussion Ensemble; Ruston-Tech Civic Symphony Orchestra; String Ensembles, Piano Ensembles

Ensemble Requirements

Full time music majors will enroll in at least one major ensemble every quarter they are students in the Music Department. Vocal and piano majors will enroll in University Choir or Concert Choir; Wind and percussion majors will enroll in band and string majors will enroll in Orchestra. All other music majors will select the major ensemble of their choice. The students will be allowed to participate in one other ensemble. Permission for participation in more than two ensembles or other music activity must be granted by the student's applied teacher and Head of the Department.

Every music major is required to attend the weekly recital and seminar classes and perform a minimum of once each quarter. It is recommended that piano majors enroll in Music 464, 465 and 467, and voice majors enroll in Music 466 and 476.

REQUIREMENTS FOR THE BACHELOR OF FINE ARTS DEGREE IN MUSIC

This curriculum is designed for those who wish to stress the performing pedagogical aspects of their training in any major—in voice, keyboard, or in some instrument of the symphony orchestra or band. All majors are required to take a minimum of two quarters of a foreign language. Other academic electives are approved according to individual needs. Each student must confer once each quarter with his/her advisor to check on his academic status and to plan future work. A senior recital is required. See departmental handbook for upper division requirements in applied music. This program leads to the Degree of Bachelor of Fine Arts.

Freshman Year	Semester Hours
English 101, 102.....	6
Music 108, 109, 110.....	3
Music 102, 103, 104.....	6
Music Applied Major.....	4
Music Applied Minor.....	2
Music Ensemble	3
Health & Physical Education	3
Science	3
	30

Sophomore Year

English, Foreign Language or Speech.....	3
Music 201, 202, 203.....	6
Music 204, 305 or 306.....	3

Music Applied Major.....	5
Music Applied Minor.....	3
Music Ensemble	3
Music or Other Elective.....	3
Science	3
Health & Physical Education	1
Psychology 102.....	3
	33

Junior Year

Foreign Language	3
Music or Other Elective.....	3
Music 310.....	3
Music 317, 318, 319.....	6
Music Applied Major.....	5
Music Applied Minor.....	2
Music Ensemble	3
Music 303 or 314.....	2
Social Science.....	6
	33

Senior Year

Academic Elective.....	10
Foreign Language	3
Music or Other Elective.....	6
Music Theory Elective.....	3
Music Applied Major.....	6
Music Applied Minor.....	2
Music Ensemble	3
Music 455 (Recital)	0
	33

TOTAL SEMESTER HOURS 129

REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE IN MUSIC

Students who pursue a music major leading to the Bachelor of Arts degree will be required to complete the following distribution in music: Music Theory, 12 hours; History of Music, 8 hours; Applied and Ensemble Music, 22 hours. For their minor, students will take 21 hours in a subject, either within Music or outside Music, chosen with the approval of the head of the department and the dean. In addition to their major and minor, they will complete the rest of the work indicated in the curriculum below, to make a total of 131 semester hours.

Freshman Year	Semester Hours
English 101, 102.....	6
History 101, 102.....	6
Mathematics 107, 108.....	4
Music 108.....	1
Music 109.....	1
Music 102, 103, 104.....	6
Music Applied	3
Music Ensemble	3
Health & Physical Education	1
Science	3
	34

Sophomore Year

History 201, 202.....	6
Mathematics 109.....	2
Minor Subject.....	9
Music 201, 202, 203.....	6
Music Applied	3
Music Ensemble	3
Health & Physical Education	1

Science	3
	33
Junior Year	
Elective (Music Ensemble recommended)	3
English 201, 202	6
Foreign Language	3
Minor Subject	9
Music Applied	4
Music 317, 318, 319	6
Health & Physical Education	2
	33
Senior Year	
Elective (Music Ensemble recommended)	4
Elective (Music 204, 305 or 306 recommended)	3
Foreign Language	9
Minor Subject	3
Music Applied	6
Science	6
	31
TOTAL SEMESTER HOURS	131

DEPARTMENT OF PHYSICS

This curriculum is designed to give a broad and fundamental knowledge of the principles of physics, as well as an introduction to the techniques of physics research. Although the primary aim of the basic curriculum is to prepare the student for graduate work in physics, sufficient specialized courses are available to prepare the graduate for jobs in industry and in various government laboratories. The student is encouraged to pursue advanced courses in other fields to assure a broad scientific background.

Requirements For A Major

Each student who majors in physics is required to follow the physics curriculum leading to the Bachelor of Science degree in physics, or to follow the Applied Physics Option.

Applied Physics Option. The curriculum in applied physics is designed to equip its graduates with a flexible background of basic scientific knowledge with which to meet the ever changing problems of modern research and development. The program provides a sound basic foundation for study toward advanced degrees in either physics or the engineering sciences.

For students interested in interdisciplinary fields involving physics, it is suggested that the physics curriculum be followed with all electives taken in the other field of interest. Some interdisciplinary fields are listed with the appropriate elective field in parentheses: Astrophysics (Astronomy), Geophysics (Geology), Materials Science (Chemistry and Engineering), Biophysics (Zoology and Microbiology), Mathematical Physics (Mathematics), Solid State (Chemistry and Engineering).

Requirements For A Minor

Students from other departments who elect a minor in physics should complete Physics 201-202, and 14 semester hours of advanced courses.

PHYSICS CURRICULUM

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
Mathematics 230, 231	6
Elective	1
Health & Physical Education	3
English 101, 102	6
History 202	3

Speech 110	3
	30
Sophomore Year	
Health & Physical Education	1
English 202, 303	6
Physics 201, 202, 261, 262	8
Mathematics 232, 330, 350	9
German 101, 102	6
Liberal Arts Elective	3
	33
Junior Year	
Physics 304, 410, 411	11
Technical Electives	12
German 201, 202	6
Liberal Arts Electives	3
	32
Senior Year	
Physics 307	3
Physics 404, 405, 422, 423	14
Physics 424	3
Technical Electives	7
Liberal Arts Electives	6
Arts and Sciences 435	2
	35

TOTAL SEMESTER HOURS 130

See also Applied Physics Option.

Only four semester hours of physical education activity courses may count toward graduation.

The student may substitute French or Russian for German.

Liberal arts electives are to be selected from courses offered in the departments of Art, Economics, English, Foreign Languages, Psychology, Social Sciences, or Air Force Aerospace Studies.

Technical electives are to be selected from courses offered in the College of Engineering or from the departments of Chemistry, Mathematics, or Physics.

APPLIED PHYSICS OPTION

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
Engineering 102, 151, 162	6
Health & Physical Education	3
Mathematics 230, 231	6
Elective	1
English 101, 102	6
	30
Sophomore Year	
Physics 201, 202, 261, 262	8
Mathematics 232, 330, 350	9
Health & Physical Education	1
Engineering Mechanics 201	2
Electrical Engineering 213, 214	6
English 202, 303	6
	32
Junior Year	
Physics 304, 410, 411	11
Engineering Mechanics 203	2
Electrical Engineering 353, 354, 355	7
Mechanical Engineering 433	3
Speech 110	3

Technical Electives	8
.....	34
Senior Year	
Physics 307	3
Physics 424	3
Physics 404, 405, 422, 423	14
Economics 215	3
Engineering 401	3
Liberal Arts Electives	6
Arts and Sciences 435	2
.....	34

TOTAL SEMESTER HOURS 130

See also Physics curriculum.

Only four semester hours of physical education activity courses may count toward graduation.

Technical electives are to be selected from courses offered in the College of Engineering or from the departments of Chemistry, Mathematics, or Physics.

Liberal arts electives are to be selected from courses offered in the departments of Art, Economics, English, Foreign Languages, History, Psychology or Social Sciences, or Air Force Aerospace Studies.

DEPARTMENT OF PROFESSIONAL AVIATION

The Program

The Professional Aviation curriculum combines flight training with both aviation technical courses and non-aviation university studies. This program leads to the Degree of Bachelor of Science.

Requirements for Admission

The student must pass an appropriate physical examination administered by a Federal Aviation Administration designated medical doctor.

Requirements for a Major

A major in Professional Aviation consists of 44 semester hours of aviation courses as follows: Professional Aviation 103, 113, 200, 206, 207, 213, 303, 306, 307, 313, 322, 400, 414, 413.

Requirements for a Minor

A minor in Aviation flight consists of Professional Aviation 103, 113 and 16 semester hours of advanced courses. A minor in Flight Engineer Theory is open to Professional Aviation majors and consists of Professional Aviation 205, 304, 305, 407, 408, 409 and 412.

Special Flight Fees

Fees are required for each flight course. A listing of these fees can be obtained by writing the Department Head.

PROFESSIONAL AVIATION CURRICULUM

Freshman Year	Semester Hours
English 101, 102, 201 or 202	9
Mathematics	6
Health & Physical Education	3
Psychology 102	3
Professional Aviation 103, 113	6
Social Science Elective	3
Free Elective	3
.....	33

Sophomore Year	
Health & Physical Education	1

History 201, 202	6
Physics 205, 206	6
Professional Aviation 200, 206, 207, 213	15
Free Elective	3
.....	31

Junior Year	
English 303 or 332 or 336	3
Free Elective	3
Speech 377	3
Social Science Elective	3
Professional Aviation 303, 306, 307, 313	11
Minor Field	9
.....	32

Senior Year	
Natural Science Elective	6
Minor Field	12
Professional Aviation 322, 400, 413, 414	12
Free Elective	3
.....	33

TOTAL SEMESTER HOURS 129

Either Mathematics 111 and 112, or 110 and 114 may be taken depending on results of ACT and mathematics placement test.

Only four semester hours of physical education activity courses may count toward graduation.

Social Sciences electives must be taken from courses offered by the Department of Social Sciences.

DEPARTMENT OF SOCIAL SCIENCES

Requirements For A Major

Thirty semester hours of prescribed courses in geography and political science constitutes a major in those subjects in the Department of Social Sciences. Thirty-three hours of prescribed courses in sociology constitutes a major in sociology in the department. Thirty-three hours of prescribed courses in social welfare and sociology courses satisfy the requirements for a major in the Pre-Professional Curriculum in Social Welfare. Every student major must have a minor, normally twenty-one hours in a related field, chosen after consultation with his/her advisor. Every department major will consult with his/her advisor during each registration period and throughout the term as necessary.

The degree of Bachelor of Arts is conferred upon completion of any of the curricula: Geography, Political Science, Sociology, Pre-Professional Social Welfare and Pre-Law.

Requirements For A Minor

GEOGRAPHY: Any seven courses in geography constitute a minor.

POLITICAL SCIENCE: Any seven courses in political science constitute a minor.

SOCIOLOGY: Any seven courses in sociology constitute a minor.

GEOGRAPHY CURRICULUM

Freshman Year	Semester Hours
Elective	1
English 101, 102, 201	9
Geography 200, 203	6
History 101, 102, 201	9
Mathematics 110, 113 or 114 or 125 or Statistics 200	6

Health & Physical Education	2
	33
Sophomore Year	
English 202	3
Foreign Language	6
Geography 230, plus elective	6
History 202	3
Health & Physical Education	2
Political Science 201	3
Science	8
Elective	3
	34
Junior Year	
Economics 215	3
Electives	6
Foreign Language	6
Geography 380	3
Geology 111, 121	4
Sociology 201, 205 or 460	6
	28
Senior Year	
Political Science 302	3
Electives	16
Geography	15
	34
TOTAL SEMESTER HOURS	129

POLITICAL SCIENCE CURRICULUM

Freshman Year	Semester Hours
Elective	1
English 101, 102, 201	9
History 101, 102, 201	9
Mathematics 110, 113 or 114 or 125 or Statistics 200	6
Health & Physical Education	2
Speech 110	3
	30
Sophomore Year	
English 202	3
Foreign Language	6
Geography 203	3
History 202	3
Health & Physical Education	2
Political Science 201, 302, plus Elective	9
Science	8
	34
Junior Year	
Economics 201, 202	6
Elective	3
Foreign Language	6
Political Science 345, plus 2 electives	9
Science	4
Sociology 201, 202	6
	34
Senior Year	
Electives	19
Political Science	12
	31
TOTAL SEMESTER HOURS	129

PRE-LAW CURRICULUM

Freshman Year	Semester Hours
English 101, 102	6
Management 105	3
History 101, 102	6
Mathematics 110, 113 or 114 or 125 or Statistics 200	6
Health and Physical Education	2
Electives: Economics 100, History 201, Psychology 102 or Speech 110	6
	29
Sophomore Year	
Economics 201, 202 (or Acct 203, 204, 205)	6
Sociology 201	3
English 201, 202	6
Foreign Language	6
Health and Physical Education	2
Political Science 201	3
Science (two courses plus labs)	8
	34
Junior Year	
Business Law 355	3
Political Science 325, 326	6
English 332	3
Sociology 202, 205	6
Geography 200 or 203	3
Science (one course plus lab)	4
Electives (Management 311, Philosophy 201, 251, 252, Political Science, Business Law 441, English 303, History 202, Accounting 203, 204, 205 or Foreign Language	9
	34

Choice of Mathematics 111 and 112 or Mathematics 110 will depend upon Mathematics Placement scores.

Senior Year	
Business Law 356 (or 441 or 445)	3
English 401, 336	6
Philosophy 305	3
Political Science 426, 427	6
Sociology 314	3
Electives (Psychology 202 or 304, English 460, 484, or Economics 401, 406, 410 or Political Science 310 or 312, or Sociology 304, 318, Business Law 445 or Accounting 203, 204, 205)	9
	30
TOTAL SEMESTER HOURS	127

PRE-PROFESSIONAL CURRICULUM IN SOCIAL WELFARE

Freshman Year	Semester Hours
Economics	3
English 101, 102	6
Foreign Language	6
History 201, 202	6
Mathematics 110	3
Health & Physical Education	2
Geography	3
Zoology 105, 112	4
	33
Sophomore Year	
English 201, 202	6
Foreign Language	6
Mathematics 113 or 114 or 125	3
Health & Physical Education	2
Political Science 201	3

Sociology 201	3
Social Welfare 200	3
Speech 110	3
Statistics 200	3
Psychology 102	3
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	34

Junior Year	
History	6
Political Science	3
Psychology 202 & nine additional hours	12
Social Welfare 301	3
Sociology 312 or 345, 320 and three additional Sociology hours	9
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	33

Senior Year	
Electives	12
Computer Science	3
Sociology 401 and six additional Sociology hours	9
Social Welfare 350, 431	6
Counseling 400	3
Philosophy 201	3
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	33

TOTAL SEMESTER HOURS 134

SOCIOLOGY CURRICULUM

Freshman Year	Semester Hours
Economics 100	3
English 101, 102	6
Foreign Language	6
History 201, 202	6
Mathematics 110	3
Health & Physical Education	2
Speech 110	3
Zoology 105, 112	4
	<hr/>
	33

Sophomore Year	
English 201, 202	6
Foreign Language	6
Geography	3
History	6
Mathematics 113 or 114 or 125	3
Health & Physical Education	2
Sociology 201 and 205	6
Statistics 200	3
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	35

Junior Year	
Computer Science	3
Electives	6
Political Science 201, plus three additional Political Science hours	6
Sociology 312 or 345, 320 and six additional Sociology hours	12
Psychology 102, 202	6
	<hr/>
	33

Senior Year	
Electives	9
Philosophy 201	3
Psychology	3
Sociology 401 and twelve additional Sociology hours	15

Political Science 327 or 427	3
	<hr/>
	33
TOTAL SEMESTER HOURS	134

DEPARTMENT OF SPEECH

Requirements for a Major

A major in speech consists of 33 hours which may be earned by concentrating in Speech Communication, Theatre, or Preprofessional Speech Language Pathology. The student concentrating in Interpersonal and Organizational Communication will be expected to take the following courses: Speech 110, 211, 225, 340, 370, 430, 431, 432, 440 plus six additional hours in speech. In addition, 24 hours of specialized study in related areas must be approved by the student's advisor. The student concentrating in theatre will be expected to take the following courses: Speech 110, 201, 240, 401, 402, 404, 406, 407, 424, 428, plus three additional hours in speech. The degree of Bachelor of Arts is awarded upon completion of either the Speech Curriculum or Preprofessional Speech Pathology Curriculum.

Requirements for A Minor

A minor in speech consists of 24 hours which should include Speech 110, 200, 201, 211, 315, 340, plus 6 additional hours.

Facilities For Speech Activities

Courses which include instruction in the techniques of television and motion pictures are taught in the studio facilities of Madison Hall. These courses involve actual operation of equipment by all students enrolled.

The Louisiana Tech University Forensic Program is available to all Tech students who are interested in participating in competitive Speech activities, including Debate. Tech debaters enter several college tournaments each year.

The Louisiana Tech Speech Department presents five to seven theatre productions each year. All interested persons are welcome to participate in these theatre activities.

Speech And Hearing Center Facilities

The Louisiana Tech Speech and Hearing Center located in Robinson Hall affords diagnostic, consultative and remedial services for Tech students and the people of North Louisiana with speech, language, and hearing disorders. The testing and consultative service is provided by faculty who hold the certificate of clinical competence in Speech Language Pathology and/or Audiology and remedial aid is given by student clinicians under supervision of clinic staff.

SPEECH CURRICULUM

Freshman Year	Semester Hours
Speech 110, 201, 340	9
Science	4
Mathematics 110, 114	6
Health & Physical Education (Activity or ROTC)	2
Foreign Language	6
English 101	3
	<hr/>
	30
Sophomore Year	
English 102, 201	6
Speech 200, 211, Speech Elective	9
Foreign Language	6
Health & Physical Education (Activity or ROTC)	2
Science	4
History	3
Elective or Minor	3
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	33

Junior Year	
English 202.....	3
Speech 315, 406, 407, 416	12
Science	4
History	3
Electives.....	9
Social Science.....	3
	—
	34

Senior Year	
Electives or Minor	26
Social Science.....	3
Speech Elective.....	3
	—
	32

TOTAL SEMESTER HOURS 129

PRE-PROFESSIONAL SPEECH LANGUAGE PATHOLOGY CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
History 101, 102.....	6
Mathematics 110, Stat. 200	6
Speech 110, 210, 222	9
Zoology 111.....	3
	—
	30

Sophomore Year	
English 201 or 202, 332.....	6
Physics 205, 465.....	6
Psychology 102.....	3
Special Education 300.....	3
Speech 411, 413, 418, 420, 470	15
	—
	33

Junior Year	
Foreign Language	9

Political Science 201	3
Speech 312, 412, 443, 444, 445, 465	17
Sociology 201	3
Zoology 225	3
	—
	35

Senior Year	
Foreign Language	3
Health & Physical Education 150	2
Psychology 205, 206, 310.....	9
Special Education 301, 340, 490.....	9
Speech 425, 446.....	6
Speech Elective.....	3
	—
	32

TOTAL SEMESTER HOURS 130

Students in speech language pathology and audiology should be aware that the following requirements must be met before they will be allowed to register for Speech 312: Introduction to Clinical Procedures:

1. The student must have completed 25 hours of observation of clinic activities, speech language and hearing evaluations, and therapy sessions (either actual or video-taped).

2. The student must have an overall grade point average of 2.5 in the following courses: Speech 210, 222, 411, 413, 418, 420, and 470.

3. The student must file with the head of the department a formal application for permission to register for Speech 312. This application should be submitted the quarter for which the student is registered for Speech 411: Diagnostic Procedures.

Students should be aware that it is often necessary and appropriate to assign them to affiliated off-campus clinical training sites in order for them to earn the required clinical clock hours for certification. Each student will be responsible for transportation when assigned to one of these sites.

College of Education

OFFICERS OF INSTRUCTION

J. W. ANDREWS, Dean
J. B. AKERS, Area Coordinator, Health and Physical Education
R. E. HEARN, Director, A. E. Phillips Lab School
C. L. FOXWORTH, Associate Dean, Director, Graduate Studies
V. S. MELTON, Director, Research and Service
S. V. DAUZAT, Area Coordinator, Teacher Education
C. E. SUTTON, Director, Laboratory Experiences
T. P. SPRINGER, Area Coordinator, Behavioral Sciences

ACCREDITATION

The College of Education, one of six colleges of Louisiana Tech University approved by the Louisiana Board of Trustees for State Colleges and Universities, is accredited by the Southern Association of Colleges and Schools. As an individual unit, it is a member of the American Association of Colleges for Teacher Education and of the American Association of Business Teachers. The College of Education is accredited by the National Council for the Accreditation of Teacher Education for the preparation of teachers at the undergraduate, master's and specialist degree levels.

HISTORY AND ORGANIZATION

Since the founding of Louisiana Tech in 1894 the education of teachers has been a primary aim of the institution. The Laboratory School, A. E. Phillips Elementary School, was created by the Legislature in 1916. On November 12, 1925, the State Board of Education approved teacher education curricula, and on March 15, 1926, the State Board recognized the reorganization of these curricula. A Department of Education was recognized by the State Board in 1933 and in April of the following year authorization was granted for the organization of a separate school. In July, 1970, the School was elevated to the level of a College of Education.

In 1948, physical education was transferred from the School of Arts and Sciences to the School of Education as a department. In 1955, the offerings in education were divided, forming departments of elementary and secondary education; and the Department of Special Education was created to service schools in the parishes of Bienville, Claiborne, Jackson, Lincoln, Union, and Webster and to train teachers in working with the various areas of exceptionality. Bossier Parish was added to the work area in 1959. In 1973, the Grambling State University special education team was combined with the diagnostic team at Louisiana Tech. In 1979, the services rendered by these teams were assumed by the parish school boards. In 1965 the organization was expanded to include a Department of Psychology and Guidance and in 1970 the Division of Research and Publications was established. In July, 1972, the State Board approved a reorganization of the College which created a Division of Research and Service and a Division of Curriculum and Instruction. In the Division of Curriculum and Instruction three areas of instruction were created; teacher education which included all elementary and secondary programs, psychology and counseling, and health and physical education which included programs for men and women.

In July, 1975, the instructional program in special education was moved from Teacher Education to the area of Counseling and Psychology and the name of the area was changed to Behavioral Sciences.

By action of the State Board of Education on December 17, 1957, January 31, 1958, April 3, 1958, April 18, 1961, July 29, 1968, and February 19, 1974, authorization was given to grant the Master of Arts degree in Art Education, Elementary Education, English Education, Human Relations, Music Education, Social Studies Education, Special Education, Speech Education, and Vocational Guidance, and the Master of Science degree in Biology Education, Business Education, Chemistry Education, Mathematics Education, Physics Education, and Health and Physical Education. In April, 1967, the State Board of Education granted approval to offer the Specialist Degree and on November 1, 1968, authority was granted to offer extension or off-campus courses.

OBJECTIVES

The College of Education functions as an integral part of Louisiana Tech University. From its founding in 1894, one of the purposes of the University has been the preparation of elementary and secondary teachers. Undergraduate teacher education programs are developed and maintained through the joint activities of the faculty of the College of Education and the Louisiana Tech Teacher Education Council. The purposes of the College of Education are consonant with those of the University: to prepare qualified practitioners, to facilitate learning, to conduct research, and to perform public services. These purposes find expression in the following objectives:

1. To assist undergraduates to become competent teachers by providing quality programs in teacher education;
2. To provide a variety of experiences which will prepare the prospective teacher to assume the professional role of the teacher in different cultural milieus;
3. To provide educational experiences which will develop the individual's knowledge in both breadth and depth;
4. To provide professional consultation services, workshops, seminars, extension courses, and contract research to teachers, administrators, school boards, and other community agents interested in human development and education;
5. To maintain teacher education programs which, through reading, research, and professional meetings, embody the best of current educational ideas and practices;
6. To implement learning through the continuous development of facilities such as learning laboratories, and library resources which are relevant to educational processes at all levels;
7. To research, develop, and disseminate knowledge of human behavior helping skills, and relevant teaching-learning processes;
8. To provide needed prescriptive services to exceptional students, their teachers, and their parents;
9. To continually evaluate the curricula, course offerings, research activities, and community services of the College in the light of new knowledge, contemporary career requirements, and opportunities for college graduates;
10. To provide leisure time opportunities for students enrolled in the College of Education and other colleges and divisions on campus;
11. To provide relevant courses in Education, Library Science, Physical Education, Psychology, and Special Education needed by students enrolled in non-teacher certification programs within the University;

12. To recruit quality students for preparation as elementary, middle and secondary teachers.

Admission and Retention

Admission and retention policy for the College of Education is established and administered by the College of Education Admission and Retention Committee.

Students desiring to enter the College of Education must file an application in which they show at least a 2.0 on all college work earned.

Upon admission to the College of Education, each student will be assigned an advisor who will assist in planning a program in teacher education. This advisor will be available for conferences during the academic year and must be consulted at each registration.

Students placed on academic probation and/or suspension four times will be dropped from the College of Education. Any student re-entering the College of Education after being suspended for academic, attendance, or disciplinary reasons must re-apply to the Admission and Retention Committee.

Students entering the College of Education from Basic and Career Studies will be allowed to follow the curriculum in effect at the time of their admission to the University or the curriculum in effect at the time they enter the College of Education.

Students entering the College of Education from other senior colleges on campus or transferring from other institutions must follow the curriculum in effect at the time they are admitted to the College of Education.

Students enrolled in the College of Education who change their major must follow the curriculum in effect at the time of the change.

Any student may choose to follow a newer curriculum so long as all requirements of the newer curriculum are fulfilled.

Upper Division

After a student has earned 30 semester hours of university credit in a teacher education program, the student may apply for Upper Division. An application must be made in which the student gives evidence of meeting the following qualifications:

1. Applicant must have earned at least 30 semester hours of college or university credits which include the following courses or their equivalents: Education 101, (Elementary majors only), 200; English 101, 102; physical education activity (2 semester hours); science (3 semester hours); and Speech 110.

2. Applicant must have grade point average of 2.2 on all work attempted, with a grade of at least C in Education 200; English 101, 102; and Speech 110.

3. Applicant must be free from physical and emotional impediments which would prevent the person being an effective teacher.

*4. Effective for all entering freshmen in the fall of 1981, students shall be admitted to professional programs in education at public universities after achieving a score of at least 16 on the ACT and a GPA of at least 2.2 (on a scale of 4.0). Students who achieve scores of 15 and 14 on the ACT may be admitted to professional programs in education under the following circumstances only:

(a) An ACT score of 15 must be combined with a minimum GPA of 2.3 or above (on a scale of 4.0).

An ACT score of 14 must be combined with a minimum GPA of 3.2 or above (on a scale of 4.0).

The following guidelines shall be followed in calculating the GPA:

(a) No credit earned in developmental (remedial) courses shall be included in calculating the GPA.

(b) The GPA shall be calculated based on all other credits earned at the university, including courses taken more than once.

No student may be admitted to a professional program in education who does not achieve a score of at least 14 on the ACT.

There is no limit on the number of times a student may take the ACT.

Based on its own rigorous assessment of the quality of applicants, each institution is permitted to admit an additional 10 percent of the total number of students who qualify for admission each year.

*Criterion four (4) is in litigation at the present time. Should these standards be upheld, all students admitted to teacher education programs since Fall, 1981, will be held responsible for meeting these criteria.

Deliberate falsification of the application may result in the student being dropped from the College of Education. The application must be filled in completely, dated, signed, and turned in to the Dean's office one week before the beginning of the quarter during which the applicant will register for Upper Division courses.

Applicants may be asked to appear before the Admission and Retention Committee of the College of Education to explain or defend their applications, to present additional information, or to demonstrate ability in certain areas.

Credits Through College Entrance Examination Board

For information concerning this section, contact the office of the Dean.

Degrees

Students who complete a four-year teacher education curriculum in the College of Education are granted the bachelor's degree. Upon successful completion of the NTE, students are awarded a certificate by the State Department of Education to teach their specialties in the schools of Louisiana.

The degree of Bachelor of Science is awarded to students who finish curricula in business education, mathematics education, science education, and health and physical education. The degree of Bachelor of Arts is awarded to students finishing all other undergraduate curricula. The Master of Arts degree is awarded in the following areas: art education, counseling education, elementary education, English, human relations and supervision, music, reading, social studies, special education and speech education. The Master of Science degree is awarded in the following: biology, business, chemistry, physics, mathematics, and physical education. The Specialist degree in Education is awarded in the following areas: counseling and reading.

Louisiana Tech and Grambling State University offer a co-operative program in generic certification for Special Education. Frequent exchange of faculty enables each program to provide additional expertise and frequency of course offerings. Students are encouraged to take this opportunity to select needed course work from both universities to complete their program of study in Special Education.

Students who are interested in scholarships and/or state financial aid should contact the office of the Dean.

Graduation Requirements

In addition to completing the general graduation requirements of Louisiana Tech, students pursuing a degree program which leads to Louisiana teacher certification must take the National Teachers Examination.

Students completing a degree program leading to Louisiana Teacher Certification must make a grade no lower than 'C' in all specialized academic courses and in all professional

courses. An earned grade point average of at least 2.5 (on a scale of 4.0) is required also.

Reading 200 cannot be used for degree credit in the Psychology curriculum. Courses numbered less than 100 will not apply toward degree requirements in any curriculum.

State certification requirements do not permit the substitution of credit for ROTC and band for health and physical education activities requirements. Health and physical education activity credit accepted by the University for military service can be applied to satisfy this requirement, except in cases where a specific activity is required in a curriculum.

Correspondence courses and off-campus work which a student in the College of Education wishes to apply toward a degree must be approved by his/her advisor and Dean.

Second Teaching Areas Available to Education Majors

Second teaching areas are required in all teacher education curricula except art, elementary, business, music, speech, language, and hearing therapy, and science.

The specific course requirements for second teaching areas in the different fields are as follows:

English:

Education 403, English 101, 102, 201, 202, 332, 336, 415, 422, and 3 hours of English electives.

Foreign Language:

Education 351 plus 24 semester hours in a language above the sophomore (202) level. In French a minimum of 12 semester hours above the sophomore (202) level must be fulfilled by a 2-semester residence in a university abroad or by 2 summers of intensive immersion study on a Louisiana university campus or abroad. The foreign study requirement may be substituted by a score of Intermediate High on the ACTFL proficiency test. For requirements for add-on certification in the elementary school, please see notes 2 and 3 following the French and Spanish curricula.

Journalism:

101, 310, 2 of the following courses: 350, 353, 355; and 11 hours of electives.

Library Science:

201, 301, 302, 303, 305, 440, Education 420 and 446.

Mathematics:

111, 112, 113, 230, 231, 232, and 307.

Science:

(Certification in any science area requires credit or proficiency in college algebra and trigonometry as the minimum math requirements. Laboratories normally associated with each science shall be taken.

General Science - Botany 101, 104; Zoology 111, 112; Chemistry 101, 102, 103, 104; Physics 209, 261, 210, 262; Geology 111, 121, 112, 122

Biology - Bacteriology 210, Botany 101, 104, 223; Zoology 111, 112, 115, 116, 313; one year of chemistry including labs.

Chemistry - Chemistry 101, 103, 102, 104, 205, 250, 251, 253, 252, 254

Earth Science - Geology 111, 121, 112, 122, 200, 303, 305, 318

Physics - Physics 209, 261, 210, 262, 207, 304, 350, 465; Math 230

Health and Physical Education:

200, 320, 326, 405, 457; Zoology 225, plus 10 hours in activities and techniques with consent of physical education minor advisor.

Psychology Minor: (Does not lead to Louisiana Teacher Certification)

Psychology Minor requires 21 hours. Courses: Psychology 102, 202, 300, 307, 312, 414 or 418, 310 or 304.

Social Studies:

History 101, 201, 202, 460, Political Science 201 and 304, Sociology 201, Geography 203, 230; Economics 200 and 215.

Speech:

110, 200, 201, 211, 315, 340, 406, 407, 416, plus 3 hour Speech Elective.

Business:

Econ. 215, Acct. 203, 204, 205, 210, Office Adm. 102, 103 and 480. Quantitative Analysis 220, Business Law 335 or 356, Marketing 300, Education 410 and 445.

Student Teaching and Laboratory Experiences

The capstone of all teacher education curricula is the intensive phase of laboratory experiences provided in student teaching. Also, all curricula require additional laboratory experiences in courses taken prior to student teaching.

Professional laboratory experiences are provided both in a campus laboratory school and in public elementary and secondary schools in area parishes.

Prerequisites for student teaching are as follows:

A. General Prerequisites

1. Must be registered in the Upper Division of the College of Education

2. Must have achieved a 2.5 on hours earned.

3. Must be recommended for student teaching by faculty advisor and approved by the Student Teacher Screening Committee.

4. Education 390 and 402 must be taken before or during student teaching.

5. Must have earned a grade no lower than 'C' in all education and psychology courses taken before student teaching.

B. Additional Prerequisites for Elementary Education Majors

1. Must have successfully completed Education 320, Education 322, Education 323, Education 324, Psychology 204, and Psychology 205.

C. Additional Prerequisites for Secondary Education Majors

1. Must have successfully completed Education 380, Education 401, and Psychology 206.

2. Must have a 'C' or better in each course pursued in the major and minor program areas.

3. The special methods course(s) in student teaching area(s) must be completed before student teaching.

4. Must have completed virtually all course work in major and minor program areas.

D. Additional Prerequisites for Speech, Language, and Hearing Therapy

1. Must have successfully completed Psychology 204, 205, 206, Education 323, Education 324, and 355.

2. Must have a 'C' or better in each course pursued in major area.

3. Must have completed virtually all course work in major area.

E. Additional Prerequisites for Special Education.

1. Must have successfully completed all required 200-level psychology courses, Education 324, Education 420 (Reading Practicum), and Special Education 300.

2. Additional prerequisites for Mild/Moderate-Elementary majors are Special Education courses 301, 302, 340, 341, 375, 475, and 490. Special Education 495 may be taken with student teaching. Also required as prerequisites are Education 323 and Education 420 (Elementary Practicum).

3. Additional prerequisites for Mild/Moderate-Secondary majors are Special Education courses 301, 302, 340, 341, 375, 471, 475, and 490. Either Special Education 472 or 495

may be taken with student teaching. Otherwise, each course is a prerequisite.

4. Additional prerequisites for Preschool Handicapped majors are Special Education courses 460, 461, 462, and 464. Also required as prerequisites are Home Economics courses 301, 411, and 406. Special Education 463 may be taken with student teaching.

5. Additional prerequisites for Severe Profound majors are Special Education courses 303, 340, 376, 462, 465, 477, 490. Special Education 495 may be taken with student teaching.

No more than three semester hours may be taken with student teaching. Any course scheduled in addition to student teaching must not conflict with student teaching. The hours involved in student teaching will be approximately 8 a.m. to 3p.m. Monday through Friday.

No conventional grades or quality points are given.

DIVISION OF EDUCATIONAL RESEARCH AND SERVICE

The Division of Educational Research and Service was created in 1970 to encourage and coordinate research activities in the College of Education and to provide assistance to local and state education agencies. The Division cooperates with other research and service areas within and without the University.

The College of Education Research Committee, with the Director of the Research and Service Division serving as chairman, recommends general policies and procedures for the Division. The Division is responsible to the Dean of the College of Education. Financial support for the activities of this Division is derived through the regular operating budget and special grants.

Scholarships

Scholarships are available in the College of Education. For information concerning these scholarships, contact the Office of the Dean of the College of Education.

ART EDUCATION CURRICULUM

Freshman Year	Semester Hours
Art 115, 116, 117, 120, 125, 126	18
English 101, 102.....	6
Health & Physical Education Activities	3
Mathematics 110.....	3
Speech 110.....	3

35

Sophomore Year	
Art 121, 215, 216, 220	12
Biological Science	3
Education 200	3
English 201, 202.....	6
Health & Physical Education 150	2
Health & Physical Education Activity.....	1
History 201, 202.....	6
Mathematics 125.....	3

36

Junior Year	
Art 225, 330, 366, 367	12
Education 360, 380, 390, 402	9
Physical Science	3
Political Science 201	3
Psychology 206.....	3
Science Elective	3

33

Senior Year	
Art 240, 241	6
Education 401, 403, 404, 416, 450	19
Science Elective	3
Social Studies Elective.....	3
Special Education 300.....	3

34

TOTAL SEMESTER HOURS 136

BUSINESS EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science Elective	3
English 101, 102.....	6
Health & Physical Education Activities	2
History 201 or 202.....	3
Math 110, 125.....	6
Office Administration 102, 103	4
Physical Science Elective	3
Political Science 201	3
Speech 110.....	3

33

Sophomore Year	
Business Communication 205	2
Economics 201, 202.....	6
Education 200	3
Electives (In option)	9*
English 201, 202.....	6
Health & Physical Education Activities	2
Psychology 206.....	3
Science elective.....	3

34

Junior Year	
Accounting 203, 204, 205	6
Business Communication 305	3
Business Law 355	3
Education 380, 390, 402	6
Electives (In option)	3*
Management 311	3
Marketing 300	3
Quantitative Analysis 220.....	3
Special Education 300.....	3

33

Senior Year	
Accounting 210.....	3
Education 401, 403, 404, 410, 416, 445, 462.....	25
Office Administration 307	3
Science Elective	3

34

TOTAL SEMESTER HOURS 134

*The Shorthand Option or the Business Administration Option will determine the elective.

**The Shorthand Option or the Business Administration Option will determine the amount of credit.

SHORTHAND OPTION (12 hours)

Office Administration 210, 214, 215, 216

BUSINESS ADMINISTRATION OPTION (12 hours)

Business Law 356	3
Economics 312.....	3
Finance 318	3
Office Administration 480.....	3

ELEMENTARY EDUCATION CURRICULUM

Freshman Year	Semester Hours
Art 101, 102.....	4
Botany 101, 104.....	4
Education 101.....	1
Elective.....	3
English 101, 102, 201.....	9
Health & Physical Education 290.....	3
Health & Physical Education Activities.....	2
History 201.....	3
Speech 110.....	3
	32
Sophomore Year	
Botany 225.....	3
Education 200.....	3
English 202.....	3
Geography 203, 230.....	6
Health & Physical Education 130, 150.....	3
History 202.....	3
Library Science 201.....	3
Music 230.....	2
Political Science 201.....	3
Psychology 204.....	3
Zoology 105, 112.....	4
	36
Junior Year	
Education 320, 322.....	6
Elective.....	3
English 332.....	3
Health & Physical Education 340.....	3
Health & Physical Education Activity.....	1
Mathematics 303, 304.....	6
Music 234.....	2
Physics 205.....	3
Psychology 205.....	3
Speech 330.....	3
	33
Senior Year	
Education 323, 324, 390, 402, 416, 420.....	21
Elective.....	3
History 460.....	3
Food & Nutrition 223.....	2
Special Education 300.....	3
	32
TOTAL SEMESTER HOURS.....	133

OPTIONS

In lieu of the basic Elementary Education Curriculum students in the field may choose an option in Early Childhood or Library Science.

Early Childhood Education

In addition to the basic Elementary curriculum the following courses will be required to complete this option: Education 420, 431, 432, 441, and Psychology 408 or Family & Child Studies 301.

The following courses found in the basic Elementary curriculum will not be required for this option: Electives (9), English 332 and Geography 230.

Library Science (27 hours)

In addition to the basic Elementary curriculum the following courses will be required to complete this option: Education 420 (LS), 446, Library Science 201, 210, 301, 302, 303, 305, Library Science Electives (6).

The following courses found in the basic Elementary curriculum will not be required for this option: Education 390, Electives (9), English 332, Geography 203, and Health & Physical Education 290.

ENGLISH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science.....	3
English 101, 102, 201.....	9
Health & Physical Education Activities.....	2
History 201, 202.....	6
Mathematics 110, 125.....	6
Physical Science.....	3
Speech 110.....	3
	32
Sophomore Year	
Education 200.....	3
Electives (minor).....	6
English 202, 332.....	6
English 336.....	3
Health & Physical Education Activity.....	1
Political Science 201.....	3
Science Electives.....	6
Social Science Elective.....	3
	31
Junior Year	
Education 350, 380, 390.....	7
Electives (minor).....	6
English 415 and 403 or 404.....	6
English 413, 414 or 440.....	3
Health & Physical Education 150.....	2
Health & Physical Education Activity.....	1
Library Science 303, 305.....	6
Psychology 206.....	3
	34
Senior Year	
Education 401, 402, 403, 404, 416.....	18
Electives (minor).....	9
English 416 or 417.....	3
Special Education 300.....	3
	33
TOTAL SEMESTER HOURS.....	130

FRENCH EDUCATION CURRICULUM

Freshman Year	Semester Hours
English 101, 102, 201.....	9
French 101, 102, 201.....	9
Health & Physical Education Activities.....	2
History 201, 202.....	6
Mathematics 110.....	3
Speech 110.....	3
	32
Sophomore Year	
Biological Science.....	3
Education 200.....	3
Elective (minor).....	3
English 202.....	3
French 202, 301, 302.....	9
Mathematics 125.....	3
Health & Physical Education Activities.....	2
Physical Science.....	3
Political Science 201.....	3

Science Elective	3
	<hr/> 35
Junior Year	
Education 351, 380, 390	7
Electives (minor)	3
French 304, 305	6
French Upper Division Electives	6
Health & Physical Education 150	2
Psychology 206	3
Science Elective	3
Social Studies Elective	3
	<hr/> 33

Senior Year	
Education 401, 402, 403, 404, 416	18
Elective (minor)	6
French 450, 470	6
Special Education 300	3
	<hr/> 33

TOTAL SEMESTER HOURS 133

HEALTH AND PHYSICAL EDUCATION CURRICULUM

Freshman Year	Semester Hours
Botany 212	3
English 101, 102, 201, 202	12
Health and Physical Education 290 (Team Activity)	4
History 201, 202	6
Math 110, 125	6
Health & Physical Education (Gymnastics)	1
Speech 110	3
	<hr/> 35

Sophomore Year	
Education 200	3
Elective (Minor)	3
Health and Physical Education 200, 251, 292, 293, 300	15
Geology 111 or Physics 209 or Chemistry 101	3
Political Science 201	3
Psychology 206	3
Zoology 105	3
Social Studies Elective	3
	<hr/> 36

Junior Year	
Education 380, 390	4
Electives (Minor)	6
Health and Physical Education 294, 305, 320, 326	12
Health and Physical Education (Technique)	4
Health and Physical Education (Rhythms; Weight or Fitness; Individual or Dual)	3
Zoology 225	3
	<hr/> 35

Senior Year	
Education 416	9
Health and Physical Education 405, 408, 414, 457	12
Health and Physical Education (Aquatics)	1
Education 401, 402, 403, 404	9
Education (Second Methods)	3
	<hr/> 34

TOTAL SEMESTER HOURS 140

Health and Physical Education techniques and activities with consent of advisor.

HEALTH AND PHYSICAL EDUCATION CURRICULUM

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
English 101, 102, 201	9
Journalism 450	3
Health & Physical Education Activities	5
History 201, 202	6
Mathematics 110, 125	6
Psychology 102	3
	<hr/> 32

Sophomore Year	
Speech 377	3
English 202	3
Health & Physical Education 290, 300, 304, 150	11
Health & Physical Education Activities	3
Life Sciences 200, 300	6
Sociology 201, 202	6
Elective (minor)	3
	<hr/> 35

Junior Year	
Health & Physical Education 326	3
Zoology 225, 226	4
Health and Physical Education Electives (minor)	9
Electives	18
	<hr/> 34

Senior Year	
Health & Physical Education 405, 406, 407, 410, 414	14
Psychology 304	3
Health and Physical Education 415	6
Electives (minor)	6
	<hr/> 30

TOTAL SEMESTER HOURS 130

HEALTH AND PHYSICAL EDUCATION CURRICULUM RECREATION OPTION

Freshman Year	Semester Hours
Life Sciences 200	3
English 101, 102, 201	9
Health & Physical Education 225, 290	6
History 201, 202	6
Math 110, 125	6
Health & Physical Education Activity	1
	<hr/> 33

Sophomore Year	
English 202	3
Journalism 450	3
Botany 212	3
Zoology 225, 226	4
Sociology 201	3
Health & Physical Education 226, 300, 304, 317	12
Health & Physical Education Activities	3
Psychology 206	3
	<hr/> 34

Junior Year	
Horticulture 220 or 307	3
Speech 110 or 377	3
Political Science 201	3
Electives	11
Art 240	3
Health & Physical Education 320, 326, 355	9

Health & Physical Activity	1
.....	33
Senior Year	
Health & Physical Education 404, 405, 406, 410, 414.....	14
Health & Physical Education 415	6
Electives.....	9
.....	29
TOTAL SEMESTER HOURS	129

LIBRARY SCIENCE

To meet the needs of Louisiana schools, courses in library science are offered which prepare teachers and librarians in conformity with the requirements of the State Department of Education and the Southern Association of Colleges and Schools. A student may follow the elementary education curriculum with a library science option or a secondary education degree plan with a minor in library science and be certified as a school librarian. Students completing the non-certifying program of library science qualify for public library positions and are eligible for civil service library positions.

LIBRARY SCIENCE CURRICULUM

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
English 101, 102, 201.....	9
Foreign Language	6
Health & Physical Education Activities	2
History 101, 102.....	6
Mathematics 110, 125.....	6
Science	3
.....	32
Sophomore Year	
English 202.....	3
Electives or Minor	6
History 201, 202 or Political Science 201, 302.....	6
Library Science 201, 210, 303.....	9
Health & Physical Education	2
Science	3
Speech 110.....	3
.....	32
Junior Year	
Education 445.....	3
Library Science 301, 302, 305.....	9
Library Science Elective*	3
Management 201	3
Science	3
Electives or minor	10
.....	31
Senior Year	
Education 420	3
Library Science Electives*	9
Science	3
Electives or minor	18
.....	33
TOTAL SEMESTER HOURS	128

*Electives to be chosen from the following: Library Science 315, 330, 410, 440, 450, 451

MATHEMATICS EDUCATION CURRICULUM

Freshman Year	Semester Hours
English 101, 102, 201.....	9

Health & Physical Education Activities	3
History 201, 202.....	6
Mathematics 111, 112, 230.....	9
Speech 110.....	3
.....	30
Sophomore Year	
Botany 101, 104.....	4
Education 200	3
Electives (minor)	6
English 202.....	3
Health & Physical Education Activity.....	1
Mathematics 231, 232, 113.....	9
Psychology 206.....	3
Zoology 105, 112	4
.....	33

Junior Year	
Education 356, 380, 390	7
Electives (minor)	7
Mathematics 318, 401, 307.....	9
Physics 205, 206.....	6
Political Science 201	3
.....	32

Senior Year	
Education 401, 402, 403, 404, 416	18
Electives (minor)	6
Health & Physical Education 150	2
Mathematics Electives.....	6
Social Studies Elective.....	3
Special Education 300.....	3
.....	38
TOTAL SEMESTER HOURS	133

MUSIC EDUCATION CURRICULUM

Freshman Year	Semester Hours
Education 101	1
English 101, 102.....	6
Mathematics 110.....	3
Health & Physical Education Activity.....	1
Music (Applied)	11
Music 102, 103, 104, 108, 109, 110	9
Speech 110.....	3
.....	33
Sophomore Year	
Political Science 201	3
Education 200	3
English 201.....	3
Health & Physical Education Activity.....	1
History 201, 202.....	6
Mathematics 125.....	3
Music (Applied)	6
Music 201, 202, 203, 317, 318, 319	12
.....	37
Junior Year	
English 202.....	3
Education 380, 390	4
Health & Physical Education Activity.....	1
Music (Applied)	9
Music 304 or 401, 310, 303 or 314.....	8
Physical Science	3
Physics 465.....	3
Biological Science	3

Psychology 206.....	3
—	37
Senior Year	
Education 401, 402, 403, 404, 416, 465 or 466.....	20
Health & Physical Education Activity.....	1
Music (Applied)	4
Music 204, 305 or 306.....	3
Science Elective	3
Social Science Elective.....	3
Special Education 300.....	3
—	38

TOTAL SEMESTER HOURS 145

After completing the curriculum, the graduate will be eligible for certification from the State Department of Education to teach vocal and/or instrumental music in schools, depending upon the applied music elected. Upon entrance, the student will declare the particular certification desired.

For those desiring certification to teach music, the distribution of work taken in applied music must be in accordance with one or more of the plans listed above. The plan, or plans, pursued will be determined by individual desire for certification.

The curriculum for Vocal and Instrumental Certificate includes both Music 303 and 314, Education 465 and 466, and 20 additional music hours. Ensemble requirements for Music Majors listed under the College of Arts and Sciences should be noted.

PSYCHOLOGY CURRICULUM

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
English 101, 102.....	6
History 101, 102 or 201, 202.....	6
Mathematics 110.....	3
Speech 110.....	3
Psychology 102, 202.....	6
Zoology 105 or 111, 112.....	4
Health & Physical Education.....	2
Elective	3
—	33

Sophomore Year	
English 201, or 202, 303 or Journalism 101	6
Health & Physical Education	2
Psychology 300, 301, 302, 304.....	12
Sociology 201	3
Political Science 201	3
Zoology 225.....	3
Psychology Elective.....	3
—	32

Junior Year	
Psychology 307, 310, 312, 321, 461	15
Business Law 355	3
Management 311	3
Special Education 300.....	3
Sociology 202	3
Electives.....	6
—	33

Senior Year	
Psychology 407, 418, 450, 465 or 400.....	12
Psychology Elective.....	3

Counseling 400	3
Electives.....	13
—	31

TOTAL SEMESTER HOURS 129

Requirements for a minor in Psychology: 21 hours approved by the Psychology advisor

SCIENCE EDUCATION CURRICULUM

(General Science and Chemistry or Physics or Earth Science)

Freshman Year	Semester Hours
Botany 101, 104.....	4
Chemistry 101, 103.....	4
English 101, 102.....	6
Health & Physical Education Activities	2
Geology 111, 121.....	4
Mathematics 111, 112.....	6
Speech 110.....	3
Zoology 111, 112	4
—	33

Sophomore Year	
Bacteriology 210.....	3
Biological Science Elective	3
Chemistry 102, 104	4
Education 200.....	3
English 201, 202.....	6
Health & Physical Education Activities	2
History 201.....	3
Political Science 201	3
Psychology 206.....	3
Zoology 115, 116	4
—	34

Junior Year	
Biological Science Electives.....	3
Education 352, 380, 390	7
Geology 112, 122.....	4
History 202.....	3
Physics 209, 261, 210, 262	8
Physical Science Electives.....	8
—	33

Senior Year	
Biological Science Elective	3
Education 401, 402, 403, 404, 416	18
Electives.....	4
Health & Physical Education 150	2
Social Studies Elective.....	3
Special Education 300.....	3
—	33

TOTAL SEMESTER HOURS 133

Physical science electives must be taken in the same discipline — chemistry, geology, or physics. Physics certification also requires Mathematics 230.

BIOLOGY EDUCATION CURRICULUM

Freshman Year	Semester Hours
Botany 101, 104.....	4
Chemistry 101, 103.....	4
English 101, 102.....	6
Health and Physical Education Activities	2
Mathematics 111, 112.....	6
Speech 110.....	3
Zoology 111, 112.....	4

Electives.....	2
	31
Sophomore Year	
Bacteriology 210.....	3
Botany 223.....	3
Chemistry 102, 104.....	4
Education 200.....	3
English 201, 202.....	6
Health and Physical Education Activities.....	2
History 201.....	3
Political Science 201.....	3
Psychology 206.....	3
Zoology 115, 116.....	4
	34
Junior Year	
Education 352, 380, 390.....	7
Health and Physical Education 150.....	2
History 202.....	3
Life Sciences 200.....	3
Minor (second teaching field).....	12
Zoology 313, 315.....	6
	33
Senior Year	
Education 401, 402, 403, 404, 416.....	18
Minor (second teaching field).....	9
Social Studies Elective.....	3
Special Education 300.....	3
	33
TOTAL SEMESTER HOURS.....	131

CHEMISTRY EDUCATION CURRICULUM

Freshman Year	Semester Hours
Chemistry 101, 103, 102, 104.....	8
English 101, 102.....	6
Health and Physical Education Activities.....	2
Mathematics 111, 112.....	6
Speech 110.....	3
Biological Science.....	3
Electives.....	3
	31
Sophomore Year	
Chemistry 250, 251, 252, 253, 254.....	8
Education 200.....	3
English 201, 202.....	6
Health and Physical Education Activities.....	2
History 201.....	3
Minor (second teaching field).....	3
Political Science 201.....	3
Psychology 206.....	3
	32
Junior Year	
Chemistry 205, 351, 353.....	8
Education 352, 380, 390.....	7
Electives.....	3
History 202.....	3
Health and Physical Education 150.....	2
Minor (second teaching field).....	12
	34
Senior Year	
Education 401, 402, 403, 404, 416.....	18

Electives.....	3
Minor (second teaching field).....	6
Social Studies Elective.....	3
Special Education 300.....	3
TOTAL SEMESTER HOURS.....	130

EARTH SCIENCE EDUCATION CURRICULUM

Freshman Year	Semester Hours
English 101, 102.....	6
Electives.....	3
Biological Science.....	3
Geology 111, 121, 112, 122.....	8
Health and Physical Education Activities.....	2
Mathematics 111, 112.....	6
Speech 110.....	3
	31
Sophomore Year	
Education 200.....	3
English 201, 202.....	6
Geology 209, 210, 211.....	9
Health and Physical Education Activities.....	2
History 201.....	3
Minor (second teaching field).....	3
Political Science 201.....	3
Psychology 206.....	3
	32
Junior Year	
Education 352, 380, 390.....	7
Geology 200, 303, 305.....	9
History 202.....	3
Health and Physical Education 150.....	2
Minor (second teaching field).....	12
	33
Senior Year	
Education 401, 402, 403, 404, 416.....	18
Electives.....	4
Minor (second teaching field).....	6
Social Studies Elective.....	3
Special Education 300.....	3
	34
TOTAL SEMESTER HOURS.....	130

PHYSICS EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science.....	3
English 101, 102.....	6
Health and Physical Education Activities.....	2
Mathematics 111, 112, 230.....	9
Physics 207.....	3
Minor (second teaching field).....	3
Social Studies Elective.....	3
Speech 110.....	3
	32
Sophomore Year	
Education 200.....	3
English 201, 202.....	6
Health and Physical Education Activities.....	2
History 201.....	3
Mathematics 231.....	3
Minor (second teaching field).....	3
Physics 201, 261, 202, 262.....	8
Political Science 201.....	3

Psychology 206.....	3
	34
Junior Year	
Education 352, 380, 390	7
Health and Physical Education 150	2
History 202.....	3
Minor (second teaching field)	9
Physics 304, 410, 411	11

32

Senior Year	
Education 401, 402, 403, 404, 416	18
Electives.....	2
Physics 350.....	3
Special Education 300.....	3
Minor (second teaching field)	6

32

TOTAL SEMESTER HOURS..... 130

SOCIAL STUDIES EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
English 101, 102, 201.....	9
Health & Physical Education Activities	2
History 101, 102, 201.....	9
Mathematics 110.....	3
Science Elective	3
Speech 110.....	3

32

Sophomore Year	
Education 200	3
English 202.....	3
Geography 203, 230	6
History 202.....	3
Mathematics 125.....	3
Physical Science	3
Political Science 201	3
Sociology 201	3
Science elective.....	3
Psychology 206.....	3

33

Junior Year	
Economics 100 or 200, 215.....	6
Education 380, 390, 353	7
Elective (minor)	3
Geography Elective	3
Health & Physical Education 150	2
History 460.....	3
Sociology Elective	3
Political Science 304	3
Special Education 300.....	3

33

Senior Year	
Education 401, 402, 403, 404, 416	18
Electives (minor)	9
History Electives.....	6
Library Science 305	3

36

TOTAL SEMESTER HOURS..... 134

SPANISH EDUCATION CURRICULUM

Freshman Year	Semester Hours
English 101, 102, 201.....	9
Spanish 101, 102, 201	9
Health & Physical Education Activities	2
History 201, 202.....	6
Mathematics 110.....	3
Speech 110.....	3

34

Sophomore Year	
Biological Science	3
Education 200	3
English 202.....	3
Elective (minor)	3
Health & Physical Education Activities	2
Mathematics 125.....	3
Political Science 201	3
Physical Science	3
Science Elective	3
Spanish 202, 301, 302	9

35

Junior Year	
Education 351, 380, 390	7
Electives (minor)	3
Health and Physical Education 150	2
Spanish 380, 381	6
Spanish Upper Division Electives	6
Psychology 206.....	3
Science Elective	3
Social Studies Elective.....	3

33

Senior Year	
Education 401, 402, 403, 404, 416	18
Electives (minor)	6
Spanish 450	3
Spanish Upper Division Elective.....	3
Special Education 300.....	3

33

TOTAL SEMESTER HOURS..... 133

SPECIAL EDUCATION CURRICULUM

Freshman Year	Semester Hours
Botany 225	3
Education 101.....	1
English 101, 102.....	6
Geography 203	3
Health & Physical Education Activities	2
Health & Physical Education 150	2
History 201.....	3
Physics 205.....	3
Speech 110.....	3
Social Science Elective.....	3
Zoology 105.....	3

32

Sophomore Year	
Education 200	3
English 201, 202.....	6
Math 303, 304 (110, 125 for Secondary)	6
Psychology 204.....	3
Zoology 225	3
Electives.....	6

Special Education 300.....	3
	30
Junior Year	
Education 324, 390, 402, 420 (R)	9
History 460.....	3
Electives.....	3
	15

The remainder of the hours will be selected depending upon the area of specialization.

Mild/Moderate Elementary

Food and Nutrition 223.....	2
Health and Physical Education 130	1
Library Science 201	3
Psychology 205.....	3
Education 323, 416, 420 (E) , 472	18
Special Education 301, 302, 340, 341, 375, 475	
490, 495	24
Elective	3
	54

*Mild/Moderate Secondary**

Psychology 206.....	3
Education 401, 416, 420 (S) , 472	16
Special Education 301, 302, 340, 341, 375, 471,	
472, 475, 490, 495.....	30
Electives	6
	55

Preschool Handicapped

Family and Child Studies 301, 411.....	6
Food and Nutrition 223, 233.....	3
Home Economics 467	3
Health and Physical Education 130, 417	4
Library Science 201	3
Psychology 205.....	3
Education 416 (M/M) , 416 (S/P)	12
Special Education 340, 460, 461, 462, 463, 464	18
Elective	3
	55

Severe/Profound

Counseling 400	3
Health and Physical Education 130, 417	4
Food and Nutrition 223.....	2
Psychology 205, 408.....	6
Education 416.....	9
Special Education 303, 340, 341, 376, 462, 464	
465, 477, 490, 495.....	30
	54

* Mild/Moderate Secondary Special Education majors are encouraged to select one of the following second teaching areas. Electives may be used for these courses.

English: 332, 336, 415, 416 or 417, 400 level elective, Educ. 403

Math: 111, 112, 113, 230, 231, 232, 307

Science: Please check with your advisor for courses.

Social Studies: History 101, 202; Political Science 201, 304; Sociology 201; Geography 230; Economics 200, 215

SPEECH EDUCATION CURRICULUM

Freshman Year	Semester Hours
Biological Science	3
Elective (minor)	3

English 101, 102, 201.....	9
Health & Physical Education Activities	2
Mathematics 110, 125.....	6
Speech 110, 201, 340.....	9
	32

Sophomore Year

Education 200.....	3
Electives (minor)	6
English 202.....	3
Health & Physical Education 150	2
Health & Physical Education Activity.....	1
History 201, 202.....	6
Science Electives.....	6
Speech 200, 211	6
Speech Elective.....	3
	36

Junior Year

Education 354, 380, 390	7
Health & Physical Education Activity.....	1
Library Science 305	3
Physical Science	3
Political Science 201	3
Psychology 206.....	3
Special Education 300.....	3
Speech 315, 406, 407	9
Speech Elective.....	3
	35

Senior Year

Education 401, 402, 403, 404, 416	18
Electives (minor)	6
Social Studies Elective.....	3
Speech 416.....	3
	30

TOTAL SEMESTER HOURS 133

SPEECH, LANGUAGE, AND HEARING THERAPY CURRICULUM

Freshman Year	Semester Hours
English 101, 102, 201 or 202.....	9
History 201, 202.....	6
Health & Physical Education Activities	2
Mathematics 110, 125.....	6
Speech 110, 202, 210, 222	10
Zoology 105.....	3
	36

Sophomore Year

Education 200	3
Physics 205, 465.....	6
Political Science 201	3
Psychology 204.....	3
Special Education 300.....	3
Speech 411, 413, 418, 420, 470	15
Zoology 225	3
	36

Junior Year

Education 323, 324	6
English 332.....	3
Psychology 205, 206.....	6
Social Studies Elective.....	3

Speech 312, 412, 443, 444, 445, 465	17
	<hr/>
	35
Senior Year	
Counseling 400	3
Education 355, 390, 401, 416	14
Health & Physical Education 150	2
Psychology 310	3
Special Education 490	3
Speech 425, 446	6
	<hr/>
	31

TOTAL SEMESTER HOURS 138

Effective Fall Quarter 1985, all incoming Freshmen will have to obtain a Master's Degree in disorders of communication (Speech, language, hearing disorders and severe language disorders) in order to enter the work force as speech, language and hearing specialists in the schools of Louisiana.

College of Engineering

OFFICERS OF INSTRUCTION

C. RAY WIMBERLY, Dean
R. MICHAEL HARNETT, Associate Dean, Acting Head, Department of Industrial Engineering
JACKIE W. D. ROBBINS, Head, Department of Agricultural Engineering
PAUL N. HALE, JR., Acting Head, Department of Biomedical Engineering
THOMAS R. HANLEY, Head, Department of Chemical Engineering
JOE R. WILSON, Head, Department of Civil Engineering
CHARLES N. SCHROEDER, Head, Department of Computer Science
MILTON R. JOHNSON, Head, Department of Electrical Engineering
LEO A. HERRMANN, Head, Department of Geosciences
ROBERT O. WARRINGTON, Head, Department of Mechanical Engineering
ROBERT M. CARUTHERS, Head, Department of Petroleum Engineering
RANDALL F. BARRON, Director, Research and Graduate Studies
BOBBY E. PRICE, Director, Undergraduate Studies
RONALD H. THOMPSON, Director, Nuclear Center
CALVIN A. LEMKE, Freshman Advisor

GENERAL INFORMATION

HISTORY AND ORGANIZATION

Engineering education at Louisiana Tech University began in 1895 with a two-year program in Mechanic Arts. In 1910 this program was expanded to a Bachelor of Industry degree in General Engineering. Four-year engineering curricula developed rapidly as follows: 1921 -BS in General Engineering; 1927-BS in Mechanical-Electrical and BS in Civil Engineering; 1939-BS in Mechanical and separate BS in Electrical Engineering; 1940-BS in Chemical Engineering; 1948-BS in Petroleum Engineering; 1955-BS in Geological Engineering; 1957-BS in Industrial Engineering; 1972-BS in Biomedical Engineering; 1976-BS in Agricultural Engineering moved from Life Sciences.

Other bachelors degrees developed as follows: 1953-Geology; 1968-Construction Technology; 1968-Computer Science; 1972-Electro-Technology.

In recent years, two-year technology programs developed as follows: 1970-Land Surveying; 1973-Environmental, Instrumentation, Petroleum, Drafting, and Pulp and Paper; 1974-Mechanical.

Graduate education began in 1958 with the Master of Science degree (Engineering and in Geology). In 1968 the Ph.D. degree in Engineering was offered. In 1979 the practice-oriented Doctor of Engineering was offered. In 1980 the Master of Science in Computer Science was offered.

Academic programs in this College have undergone many changes, including some deletions. Current offerings are fully described in this catalog.

Accreditation

All engineering programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, (ABET), and all four-year engineering technology programs are accredited by the Technology Accreditation Commission of ABET.

Degrees

Associate of Science in: Instrumentation Technology, Land Surveying Technology, and Petroleum Engineering Technology. These programs are administered by the College of Engineering and are listed in this bulletin under the Division of Admission, Orientation, Basic and Career Studies.

Bachelor of Science: Agricultural Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Science, Construction Engineering Technology, Electrical Engineering, Electrical Engineering Technology, Geology, Industrial Engineering, Mechanical Engineering, and Petroleum Engineering.

High School Preparation

The best high school preparation for a student planning to enroll in a curriculum offered by the College of Engineering is listed below. However, many students who do not have this background are able to successfully complete the requirements for a degree.

English, 4 units; Algebra, 2; Plane Geometry, 1; Trigonometry, 1/2; Chemistry, 1; and Physics, 1

Dual Bachelor of Science Degree with Grambling State University

Students at Louisiana Tech University and Grambling State University have the opportunity of simultaneously pursuing two Bachelor of Science Degree programs, one at Tech and one at Grambling. Grambling's B.S. Degree in Drafting Technology is coordinated with Tech's B.S. Degree in Civil Engineering. Grambling's B.S. Degree in Electronics Technology is coordinated with Tech's B.S. Degree in Electrical Engineering.

A student who wishes to enroll for either of these dual programs may do so by declaring his/her intention when applying for admission. Transfer students are allowed to enter these programs at any registration at either of the universities.

To qualify for a B.S. Degree at Grambling and a B.S. Degree at Tech, a student must complete all courses required by the Department of Industrial Education at Grambling and the courses required by the appropriate Engineering Department at Tech. Courses that are common to both degree programs and that are offered at both universities may be taken at either university.

Admissions

All beginning freshmen who plan to major in a curriculum offered by the College of Engineering are required to enroll initially in the Division of Admissions, Orientation, Basic and Career Studies. Students majoring in Associate Degree (two year) curricula stay in the Division of Admissions, Orientation, Basic and Career Studies until they graduate. A student majoring in a Bachelor of Science curriculum offered by the College of Engineering transfers into a department in the College of Engineering when the student has demonstrated satisfactory scholastic achievement by earning a specified grade point average and has demonstrated a satisfactory achievement in mathematics.

All beginning students, regardless of high school preparation, planning to major in a curriculum offered by the College of Engineering are required to demonstrate satisfactory achievement in algebra and trigonometry by passing an examination that is given by the Mathematics Department. This examination is given the first day of each quarter and the first day of each Summer Orientation Registration Session. For the exact date, time and place the student should refer to the calendar

printed in the front of this Bulletin or to the Orientation Brochure of the University. A beginner who does not take the test is not allowed to enroll in a mathematics course. Students who do not demonstrate satisfactory achievement in algebra and trigonometry on the test are required to enroll in mathematics courses specified by the Freshman Advisor.

The scholastic achievement required in order to transfer from Admissions, Orientation, Basic and Career Studies to the College of Engineering is as follows.

United States Citizens

The student must not be on scholastic probation and must have earned credits and a grade point average as follows:

if after one quarter, 8 hours and 3.0 grade point average; if after two quarters, 16 hours and 2.5 grade point average; if after three quarters, 24 hours and 2.0 grade point average; if after four or more quarters, a 2.0 grade point average on hours pursued, including transfer credit, the student may be admitted by the Dean of the College of Engineering.

International Students

Effective December 1, 1982, the following rules apply to all international students who seek admission to a B.S. Degree Curriculum offered by the College of Engineering:

1. Students in the EFL Program will not be allowed to enroll in courses offered in the College of Engineering.

2. In addition to meeting all academic requirements set forth in the Louisiana Tech University Bulletin, the international student must have an academic grade point average of 3.0 in courses pursued that are required in that curriculum and must have completed all courses required (including electives) in the freshman year of that curriculum.

3. All international students seeking to transfer into the College of Engineering (from another institution or from another college on the Tech Campus) who have been admitted to the University must enroll in Basic and Career Studies (B & CS) for at least one quarter and earn a minimum of 8 semester hours of courses required in a College of Engineering curriculum in which the student intends to major, before being considered for admission into the College of Engineering.

4. When the international student enrollment in any curriculum reaches 15 percent or greater of the prior fall quarter enrollment of that curriculum, the department head may restrict admission of international students to that curriculum.

5. Once an international student is admitted to a curriculum in the College of Engineering, the student will be subject to the same academic requirements as all other students in the College of Engineering so long as the student remains a full-time student in that curriculum. Continuing international students who have been returned to B & CS after being admitted to the College of Engineering will be subject to the same admission requirements as all other students who have been returned to B & CS.

6. Students who think they should be exempt from these rules may appeal to the Dean, College of Engineering in writing prior to the quarter for which they are to be considered.

Scholastic Requirements

In order to establish a firm academic foundation, students in the College of Engineering are expected to demonstrate a satisfactory performance level on all required courses in physics, chemistry, mathematics and those that develop communication skills during their first two years of study. Those enrolled in the College of Engineering are required to meet all of the University scholastic standards described elsewhere in the bulletin and must also comply with the standards described below. Once admitted to the college from the Division of Admissions, Basic and Career Studies a student must maintain a GPA of 2.0 on semester hours pursued to remain in good standing.

Students in the Division of Admissions, Basic and Career Studies working to enter (or re-enter) the College of Engineering are subject to University requirements as specified within this bulletin, plus the College requirements as listed below.

1. Students in B & CS are not allowed to take more than 6 semester hours per quarter of courses offered in the College of Engineering. Of these, only 3 semester hours of courses are permitted at the 400-level.

2. Students entering the University have a total maximum of six quarters of study (or equivalent semesters), including transfer work to meet the college GPA requirement of 2.0. If the student does not earn enough credits for an overall GPA of 2.0 on semester hours pursued after the sixth quarter, he/she will not be eligible to enter the College of Engineering.

3. Students dropped from the College of Engineering must complete a minimum of eight semester hours with a GPA of at least 2.0 on all courses pursued and on all analytical courses taken (mathematics, physics, chemistry, geoscience, computer science and engineering courses) before being considered for readmittance to the College. A letter to the Dean from the student's department head requesting readmittance is required.

4. Students who have been dropped from the College of Engineering for the third time will not be considered for readmittance.

5. A student pursuing a four year degree must be in good standing in the College of Engineering the quarter he/she intends to graduate in order to be eligible for graduation.

6. For exceptions to these rules, the student or the department head may appeal in writing to the Dean, College of Engineering.

International students seeking to enter the College of Engineering are addressed in a separate policy statement in the bulletin.

The College of Engineering reserves the right to accept toward graduation only credits with a 'C' or higher grade. If a student receives a grade of 'D' or 'F' in any mathematics, computer science, geology, engineering or engineering technology course in the student's curriculum that is a prerequisite for another required course in the curriculum, the course must be repeated before proceeding in the sequence.

During any quarter in which a student is on scholastic probation the student may enroll in no more than 9 semester hours.

Engineering Professional Standards

Students in the College of Engineering are preparing to enter a profession which demands high ethical standards and practices by its members. The faculty and students of the College of Engineering are encouraged to abide by the "Code of Ethics" of the Louisiana Engineering Society which contains the following statements:

"The engineer, to uphold and advance the honor and dignity of the engineering profession and in keeping with high standards of ethical conduct

will be honest—
will be guided by the highest standards of integrity—
will not compete unfairly with another engineer—
will give credit for engineering work to those to whom credit is due"

Honesty and high ethical standards are demanded of students who are enrolled in the College of Engineering, and it is the student's right and responsibility to discourage unethical conduct. The Student Committee for Ethics promotes high ethical standards among the engineering student body, and unethical acts may be reported to this committee or the faculty.

Graduation Requirements

In addition to the requirements listed in the General Information section of this bulletin, an engineering major must have a 'C' average or better in his/her major field, calculated on the semester hours earned basis.

A major in the College of Engineering must earn at least 27 of the last 36 hours of the curriculum while registered in the curriculum major in the College of Engineering.

Electives

All electives must be approved by the appropriate department head. A free elective cannot be a prerequisite for a course specifically required in a student's curriculum.

Transfer Students

A candidate for admission to the College of Engineering by transfer from another institution or college on the Louisiana Tech Campus must submit a satisfactory record in scholarship and in conduct from the institution(s) or college(s) from which the student wishes to transfer.

If, in the judgment of the department head evaluating the transcript, the courses satisfactorily passed cover in time and content certain of the required courses in the College of Engineering curriculum which the student expects to enter, equivalent credit will be allowed. Students must have an overall grade point average of at least 2.0 in all courses for which transfer credit is allowed.

Non-Engineering Majors

A non-College of Engineering major who meets prerequisite requirements may take, without special approval from the Dean, the following courses: Any department course numbered 100, Agricultural Engineering 105, 110, 206, 209, 211, 214, 215, 216, 303, 309, 319, 320, 340, 415, 418, 420 and 431; Biomedical Engineering 200; Electrical Engineering 203 and 326; Engineering 151, 300, 401 and 431; Industrial Engineering 201 and 301; Mechanical Engineering 200 and 251; Petroleum Engineering 200; or any of the courses in the student's curriculum listed below: Forestry: Ag. E. 206, 216, 320, 340, 431; C.E. 304, 433; C. S. 102; E.M. 206, 207; I. E. 409, 425.

Architecture: C. T. 372, 471, 473; E. E. 326; E. M. 206, 207. Physics: Engr. 102, 151, 162, 401; E. M. 201, 203; M. E. 433; E. E. 213, 214, 353, 354, 355.

Business Administration: I. E. 409.

A non-College of Engineering major who meets the prerequisite requirements may take per quarter any two courses which are required in the student's curriculum and which are offered in the College.

Military Studies Credit in Engineering Curricula

Courses taken by College of Engineering students in Air Force Aerospace Studies may be accepted for social sciences and humanities electives toward their respective degree being pursued if such courses are approved by the major department head and by the Dean of the College of Engineering and fall within the acceptable guidelines of the ABET.

Expenses

In addition to the regular collegiate expenses, the student in engineering is required to purchase drawing equipment and a pocket electronic calculator of a quality approved by the faculty. All students enrolled in the College of Engineering are required to pay each quarter the subscription cost of the "Tech Engineer" and membership dues in the Louisiana Tech Engineers Association. All students, on reaching the junior level, should have free access to a typewriter for the purpose of preparing laboratory and other reports. Graduating seniors in the College of Engineering are required to complete a Graduate Data Form and to supply the Office of the Dean with three recent application-type photographs approximately 2" x 2 1/2".

Correspondence Courses

Students in the College of Engineering are permitted to include no more than six semester hours of correspondence courses for credit toward graduation in any curriculum. Prior to pursuing the correspondence work the student must obtain written approval of the Dean of Engineering. Approval will be granted only for courses in humanities or social studies. (All English courses are excluded.)

Credit by Examination

Students of exceptional scholastic achievement are allowed to take subject credit examinations in some of the courses required for a degree. The University has specific regulations controlling subject examinations, and these regulations are printed elsewhere in this Bulletin. A student in the College of Engineering may earn up to a maximum of 30 semester hours by credit examination. The College of Engineering will not accept any credits earned by passing the CLEP General Examination if the CLEP General Examination was taken after May 31, 1979.

Student Organizations

The Louisiana Tech Engineers Association is available for the participation of interested students. In addition, the following national organizations have student chapters on campus: American Society of Agricultural Engineers, Association of Biomedical Engineers, American Institute of Chemical Engineers, American Society of Civil Engineers, Association for Computing Machinery, Institute of Electrical and Electronics Engineers, Institute of Industrial Engineers, American Society of Mechanical Engineers, Society of Petroleum Engineers of AIME, American Association of Petroleum Geologists, and Associate General Contractors America.

Student Honor Societies

The following honor societies are available to those students who excel academically and are elected to membership:

- All Engineering—Tau Beta Pi
- All Technology—Tau Alpha Pi
- Biomedical Engineering—Alpha Eta Mu Beta
- Chemical Engineering—Omega Chi Epsilon
- Civil Engineering—Chi Epsilon
- Computer Science—Upsilon Pi Epsilon
- Electrical Engineering—Eta Kappa Nu
- Industrial Engineering—Alpha Pi Mu
- Mechanical Engineering—Pi Tau Sigma
- Petroleum Engineering—Pi Epsilon Tau

ENGINEERING SCHOLARSHIPS

Alexandria-Pineville Contractors Scholarship

Two \$1200 scholarships are provided for outstanding mechanical engineering students from Rapides Parish.

American Petroleum Institute Scholarship

The South Arkansas Chapter of API provides a \$1,000 scholarship for a student majoring in petroleum engineering.

Amoco Foundation Scholarships

Two \$700 scholarships are provided each fall for freshmen entering the petroleum engineering program. One is restricted to minority students. The scholarships are renewable and increase by \$100 each year to \$1,000 awards in the senior year. In addition, \$2,500 is provided for scholarships to be divided and awarded at the discretion of the petroleum engineering faculty.

Boutros Ankar Memorial Scholarship

A \$500 scholarship is provided for an outstanding student majoring in mechanical engineering.

Associated General Contractors of America Scholarships

Two scholarships in the amount of \$500 are donated by the Louisiana Highway, Heavy, Municipal and Utilities Branch of AGC. The recipients are students in construction engineering technology.

R. C. Baker Foundation Scholarships

Five \$1,500 scholarships are awarded to outstanding juniors and seniors. Two awards are made to mechanical engineering students and three are made to petroleum engineering students.

Ben T. Bogard Scholarship

A \$1,000 scholarship is awarded each fall to an outstanding engineering student who has completed at least 6 quarters and 92 semester hours at Louisiana Tech, but has at least 3 quarters remaining before graduation. The award is based on scholarship, character, leadership and need.

Ben T. Bogard Engineering Scholarship

A \$600 scholarship is awarded each fall to an engineering student who has completed at least 6 quarters and 75 semester hours at Louisiana Tech, but who has at least 3 quarters remaining before graduation. The recipient must have a grade point average of 2.5 or better. The award is based on need, scholarship, character, and leadership.

Frank Bogard Scholarship

A \$600 scholarship is awarded to a student having completed at least 3 quarters and 60 semester hours at Louisiana Tech, but not more than 91 semester hours at the beginning of the fall quarter. The award is based on scholarship, character, leadership and need.

Chicago Bridge & Iron Company Scholarship

A \$1,000 scholarship is provided each fall and alternates each year between a student in civil engineering and a student in mechanical engineering. The recipient must be a junior or senior, active in the student chapter of either ASCE or ASME and interested in pursuing a career in the construction area.

Conoco Scholarships

Two scholarships in the amount of \$1,000 are provided for students majoring in petroleum engineering.

Construction Industry Advancement Fund of Shreveport and Vicinity Scholarships

Four \$1,000 scholarships are awarded to students majoring in construction engineering technology.

Desk and Derrick Club Scholarship

A \$1,000 scholarship is provided for a student majoring in petroleum engineering.

Engineering Alumni Scholarships

Derived from contributions by engineering alumni and their employers, \$600 scholarships are awarded each fall to approximately 30 freshman engineering students. These awards are based on ACT and National Merit scores and high school records. The scholarship may be continued as long as the student maintains a grade point average of 3.0.

Oliver Woodrow Fisher Memorial Scholarships

Two scholarships in the amount of \$1,000 are awarded to students majoring in construction engineering technology, electrical engineering or mechanical engineering.

Getty Oil Company Scholarships

Two scholarships in the amount of \$1,000 are provided for students majoring in petroleum engineering.

Mendal Heller Memorial Scholarship

A \$400 scholarship is provided for an outstanding student majoring in mechanical engineering.

John R. Horton Scholarship

A \$300 scholarship is awarded to a hard-working, well-rounded senior with a grade point average of 2.5 or better.

T. L. James Company Scholarships

A \$750 scholarship is awarded each fall to a particularly well-rounded freshman who would qualify for an Engineering Alumni Scholarship. The award is continued through the senior year if the student remains in good standing.

Kaiser Aluminum Company Minority Scholarships

Twenty scholarships averaging \$1,000 are provided for minority students majoring in chemical engineering or mechanical engineering. Awards are renewable and are based on need and maintenance of good academic standing.

Kodak Minority Academic Awards

Two scholarships in the amount of \$1,000 are awarded to freshman minority engineering students. Preference is given to those who ranked in the upper 10 percent of their high school class. The award may be continued through the senior year.

Louisiana Engineering Society Womens Auxiliary — Monroe

A \$700 scholarship is awarded to a junior or senior from the Fifth Congressional District. The recipient must be in good academic standing and in some need of financial assistance.

Louisiana Engineering Society Womens Auxiliary — Shreveport

A \$600 scholarship is awarded to a junior or senior from the Shreveport—Bossier area. The recipient must be in good academic standing and in some need of financial assistance.

Louisiana Land and Exploration Scholarship

Two \$600 scholarships are awarded, one to a geosciences student and one to a petroleum engineering student. The recipients must be residents of Louisiana and are chosen on the basis of need, scholarship and leadership.

McDermott Incorporated Scholarships

Two \$1,000 scholarships are provided for a junior and a senior majoring in civil engineering.

R. A. McFarland Memorial Scholarship

An approximately \$400 scholarship is awarded to a civil engineering student who has been at Louisiana Tech for at least 2 years, but has at least 3 quarters remaining before graduation. The recipient is chosen by the civil engineering faculty and should rank in the upper one-fourth of his class among civil engineers.

Mechanical Industry Scholarship

A \$500 scholarship is provided for an outstanding mechanical engineering student from Caddo or Bossier Parish.

Mohr and Associates Scholarship

A \$900 scholarship is awarded to a minority student in civil engineering. The award is based on need and scholarship.

Monsanto Company Scholarship

A \$500 scholarship is provided for an outstanding student majoring in mechanical engineering.

Phillips Petroleum Company Scholarship

A \$1,000 scholarship is provided for a student majoring in petroleum engineering.

Roy T. Sessums Memorial Scholarships

Four scholarships in the amount of \$1,000 are awarded each year to two freshmen and two graduate students majoring in civil, electrical or mechanical engineering. These scholarships are awarded on the basis of scholarship, character and leadership. The awards may be continued if the students follow the prescribed programs in their chosen discipline and maintain a grade point average of 3.0 or better.

Shell Unit Scholarships

Two scholarships in the amount of \$500 are funded by the Shell Companies Foundation for students in computer science. The recipients are chosen on the basis of both scholarship and need by the computer science faculty.

Harrell R. and Lenore S. Smith Endowment Scholarship

A \$1,000 scholarship is awarded each fall to a student chosen by the College of Engineering Awards and Scholarships Committee.

Sun Oil Company Scholarship

A \$500 scholarship is awarded to a geosciences student chosen by the geosciences faculty.

Tenneco Oil Company Scholarship

A \$1,000 scholarship is provided for a student majoring in petroleum engineering.

Clotilde and Hall Terry Scholarships

Two \$800 scholarships are awarded to freshmen majoring in computer science. Recipients are chosen by the computer science faculty. The awards may be continued up to 4 years at the discretion of the computer science faculty.

Jack Thigpen Scholarships

Two scholarships in the amount of \$1,500 are awarded to students majoring in mechanical engineering.

Transco Oil Company Scholarship

A \$1,000 scholarship is provided for a student majoring in petroleum engineering.

Thomas J. and Elizabeth B. Wilson Scholarship

An \$800 scholarship is awarded each year to an engineering student maintaining a grade point average of 2.5 or better. The award is based primarily on need with scholarship, character and leadership being secondary considerations.

Samuel McCain Young Memorial Scholarship

An approximately \$1,000 scholarship is sponsored by the Louisiana Engineering Society Ladies Auxiliary—New Orleans. The recipient must be a civil engineering student from the New Orleans metropolitan area. The award is based on need and academic record.

DIVISION OF ENGINEERING RESEARCH

The Division of Engineering Research was created in 1953 in recognition of the importance of fundamental and applied research to the world of technology and to the professional development of a competent faculty. The purpose of the division is to encourage, promote, and facilitate the performance of original research by members of the College of Engineering and to expedite the dissemination of the knowledge thus gained. The activities of the division are directed by the Research Coordinating Committee, composed of the Engineering Academic Department Heads with the Director of Engineering Research serving as chairman of the group. This committee is responsible to the Dean of Engineering.

The financial support of research projects is derived from two primary sources: (a) the operating budget of the Division of Engineering Research and (b) sponsorship of a project by an interested outside agency.

Engineering Graduate Studies

The College of Engineering offers the Master of Science with majors (specializations) available in Agricultural, Biomedical, Chemical, Civil, Electrical, Industrial (with an Operations Research option), Mechanical, and Petroleum Engineering. The Master of Science is offered in both Computer Science and Geology.

The Doctor of Philosophy Degree in Biomedical Engineering and the Doctor of Engineering Degree are offered.

For information about graduate studies, contact the Director of Engineering Graduate Studies, Louisiana Tech University, Ruston, LA, 71272.

The Cooperative Plan

The College of Engineering is cooperating with certain industrial firms in a plan of alternate periods of work and university study for students in engineering. The Cooperative Plan provides one of the best methods for integrating technical theory and practical industrial experience in a five-year educational program. Another important purpose for maintaining the Cooperative Plan is to provide financial support for engineering students who find it financially difficult to complete their formal education. Through this program it is possible for students to earn a large part, or possibly all, of their college expenses.

Although the College of Engineering cannot guarantee work or stipulate compensation, an effort will be made to place the students in jobs having the most favorable educational and financial possibilities. The Cooperative Plan will allow the student to have approximately a year of practical experience by the time of graduation. If the student accepts permanent employment with the cooperating company, the necessity for taking special company orientation and training courses after graduation is usually eliminated. The Cooperative Plan graduate is not obligated to accept employment with the cooperating company, nor is the company obligated to offer permanent employment.

Each student participating in the Cooperative Plan is required to register at Louisiana Tech during the work phase.

Students from any department within the College of Engineering will be considered for participation in the Cooperative Plan provided they have successfully completed three quarters of university work with a grade point average of at least 2.5 and are specifically recommended by the head of the department in which they plan to complete the requirements for a degree. Requirements for graduation and the degree earned are the same as those for regular students. Individuals interested in further details should contact the Director of the Cooperative Plan, College of Engineering, Louisiana Tech University, Ruston, LA, 71272.

Division of Continuing Engineering Education

The Division of Continuing Engineering Education sponsors and coordinates various special programs other than the regular academic and research programs. These include conferences, short courses, lectures, seminars, continuing education programs, and summer institutes. These programs are designed to aid practicing engineers, technicians, and others to keep abreast of the latest developments in the rapidly expanding technical fields. Some are offered regularly on a periodic basis while others are offered on demand. Anyone desiring the offering of any special course should contact the Director of Continuing Engineering Education, Louisiana Tech University, Ruston, LA, 71272.

DEPARTMENTAL INFORMATION

Engineering Freshmen

All first-term freshmen enter the Division of Admissions, Orientation, Basic and Career Studies. Those freshmen who plan to pursue engineering curricula (excluding Computer Science, Geology and all technology curricula) will be advised by the engineering freshmen advisor. Because the freshman year is common for all engineering students, a student may complete one year of study before selecting a specific engineering curriculum.

FRESHMAN ENGINEERING CURRICULUM

Chemistry 101, 102, 103, 1048

Engineering 102, 151	4
English 101, 102	6
Mathematics 230, 231, 232	9
Departmental Orientation Course	1
Humanistic-Social Courses*	6
	34

Students who have decided on a departmental major should enroll in the engineering orientation course offered by that department.

*These courses must be approved by the Advisor.

DEPARTMENT OF AGRICULTURAL ENGINEERING

Agricultural Engineering serves exclusively the engineering needs of the world's largest and most basic industry—agriculture. It is engineering that applies energy, materials and mechanisms to multiply the effectiveness of man's activities. And it is Agricultural Engineering that applies these to improve the effectiveness of the food and fiber industry. Thanks to this and other high technology, each American farmer produces 170,000 kg of food crops each year. The value for a Russian is only 15,000 kg, and that for an Asian is just 2,000 kg. One-third of United States food production is exported. This is one-fifth of the total world exports.

Tech's Agricultural Engineering Curriculum is designed to give the student basic preparation in both engineering and agriculture; broad education in the biological, physical and social sciences; and fundamental experience in the application of engineering principles to the diverse and unique requirements of biological systems. The curriculum is organized to present a general knowledge of all major phases of Agricultural Engineering: power and machinery; structures and environment; soil and water conservation; electric power and processing; and food engineering. By judiciously selecting electives, one can specialize in such areas as forest engineering, biological engineering, aquicultural engineering, land use engineering, food engineering, environmental engineering and agricultural energy and safety.

Graduates of the Agricultural Engineering Curriculum are broadly prepared to understand natural phenomena and to apply the fundamentals of engineering, plant, soil and animal sciences to the production, transportation, processing and distribution of agricultural products and to the conservation of our natural resources. Their unique background in pure and applied life sciences combined with a strong preparation in mathematical, physical, earth and engineering sciences qualifies them to deal creatively with the growing engineering challenge of producing more and better food and fiber for an increasing population at reasonable costs while maintaining a high quality environment.

Graduates of this curriculum work as engineers in a wide variety of governmental agencies and private industries. They are also prepared to study toward higher degrees in Agricultural Engineering. Some pursue advanced training in professional schools such as law, medical, business and in other branches of engineering.

AGRICULTURAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	34
Sophomore Year	
Agricultural Engineering 186, 217, 266, 276, 286	6
Agronomy 200, 202	4
Botany 101, 104	4
Electrical Engineering 226	3
Engineering Mechanics 203, 211	6

Mathematics 330, 350	6
Physics 201, 202	6
	35
Junior Year	
Agricultural Engineering 301, 307, 315	9
Engineering Mechanics 311, 321	6
English 303	3
Mathematics Elective (300 or 400 level)	3
Mechanical Engineering 331	3
Speech 377	3
Humanistic-Social Courses	6
	33

Senior Year	
Agricultural Engineering 403, 405, 418, 470	12
Engineering 425	1
Humanities and Social Sciences Elective	6
Technical Elective	15
	34

TOTAL SEMESTER HOURS 136

All electives must effect a rationale and be approved by the Head of the Department.

DEPARTMENT OF BIOMEDICAL ENGINEERING

Biomedical Engineering is formally defined as that field which deals with the interaction between the engineering sciences and biology and medicine. The nature of the undergraduate program at Louisiana Tech University is such that it combines the practical aspects of engineering with biology and medicine to produce a new type of engineer capable of solving engineering problems. The program allows medical and biological instruction to be obtained in the life sciences (i.e., general biology, comparative anatomy, physiology, etc.) and engineering instruction to be obtained from selected standard engineering courses. The biological training is combined with the engineering training by means of a series of coordinated biomedical engineering courses taught at the sophomore, junior and senior academic levels.

The training program that leads to a Bachelor of Science degree in Biomedical Engineering is designed along broad lines to permit a student to obtain an overall education in Biomedical Engineering, and a specialty in one of the following areas: electronics, systems analysis or design.

The biomedical engineers of today are working in many rewarding areas. For example, some are involved in the design and construction of artificial internal organs; others are clinically involved in the electronics and instrumentation associated with hospital operating rooms, intensive care rooms and automated clinical laboratories; others are involved in biomedical computer systems; others are applying their engineering abilities toward the rehabilitation of handicapped persons; and some are conducting basic research using engineering analysis principles aimed at understanding the basic mechanisms that regulate the human body. Employment opportunities for biomedical engineers exist in hospitals, national research foundations, governmental research institutes, chemical companies, pharmaceutical companies, and the electronics and computer industries. Also, entrepreneurial activity in the health related industries is prospering. Innovative electronic, mechanical and chemical products can be manufactured and marketed by resourceful Biomedical Engineers.

One special feature of the Biomedical Engineering Program is that upon graduation, or at the end of the first three years of

study, the student will have completed the basic requirements necessary for admission to medical school. The program provides strong quantitative background for one who wishes to pursue a future medical career.

A clinical engineering internship program has been developed with hospitals in the state. The program is optional, and the student may spend one quarter of study in the hospital system.

Another feature of the program is that upon completion of the Biomedical Engineering degree program in any of the specialties, the student will be adequately prepared to continue his education at the graduate level by pursuing either a Master of Science and/or the Doctor of Philosophy degree in Engineering. Continued professional education in business, law and the basic medical sciences is also possible.

BIOMEDICAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	34
Sophomore Year	
Biomedical Engineering 201, 210	6
Mathematics 330.....	3
Physics 201, 261, 202, 262	8
Zoology 111, 112	4
Electrical Engineering 226	3
Engineering Mechanics 201	2
Economics 215.....	3
English 303.....	3
	34

Junior Year	
Zoology 202	4
Chemistry 250, 251	4
Technical Elective.....	9
Speech 377	3
Biomedical Engineering 301, 320	6
Mathematics 350.....	3
Electrical Engineering 353	3
Engineering Mechanics 301	2
	34

Senior Year	
Biomedical Engineering 401, 402, 403, 425.....	12
Engineering 425	1
Technical Elective.....	9
Zoology 320, 321	4
Humanistic-Social Studies	6
English 201 or 202.....	3
	35
TOTAL SEMESTER HOURS	135

All electives must be approved by the Head of the Department or the Coordinator of Undergraduate Studies. Humanities or social science electives are to be selected from courses offered in the Department of Art, Economics, English, Foreign Languages, History or Social Sciences. Technical electives are to be selected from courses offered in the Departments of the College of Engineering; 12 of the semester hours must be in the area of engineering sciences and 6 semester hours must be in the area of engineering design. (A minimum of four semester hours of credit is required in thermodynamics.) The student must select, in conjunction with the Department Head, or the Coordinator of Undergraduate Studies, a series of courses consisting of a minimum of 12 hours which specialize in one of the following areas:

- Electronics
- Design

c) Systems analysis

At the end of the ninth quarter, the student can complete the basic requirements necessary for admission to medical school and may elect to apply for entrance at that time.

One quarter may be spent as a clinical engineering intern in an associated hospital.

DEPARTMENT OF CHEMICAL ENGINEERING

Chemical Engineering encompasses the development, application, and operation of the processes in which chemical and/or physical changes of material are involved. The work of the Chemical Engineer is to analyze, develop, design, construct and/or supervise chemical processes in research and development, in pilot scale operations, and in industrial production of chemicals and refined petroleum.

The training of the chemical engineer covers chemistry, physics, mathematics, general engineering, analog and digital computer applications, material balances, energy balances, chemical equilibria, thermodynamics, kinetics and reactor design, and process control, along with laboratories emphasizing these areas.

In order to meet newly developed interests in the chemical and related fields, elective courses are offered in radioactive isotopes, industrial waste treatment, specialized computer techniques, environmental problems, polymer engineering, pulp and paper technology, biochemical engineering, and industrial mixing.

The graduate in chemical engineering is particularly versatile. Industrial work may involve the production, operating, or research departments of chemical or allied plants, such as metals, paper, petroleum, plastics, forest products, pharmaceuticals, food processing, or the technical service or process improvement sections of such industries. Graduate education in medical school, dental school, business school, law school, and chemical engineering are viable alternatives for the more accomplished graduate.

CHEMICAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	34
Sophomore Year	
Chemical Engineering 202, 254, 310, 321, 322	11
Chemistry 250, 251, 253, 254	6
Economics 215.....	3
Humanistic-Social Course.....	3
Mathematics 330, 350.....	6
Physics 201, 202.....	6
	35

Junior Year	
Chemical Engineering 301, 303, 351, 352, 355, 401.....	11
Chemistry 311, 312, 313, 314	8
Electrical Engineering 226	3
Engineering Mechanics 201, 301	4
English 201 or 202, 303.....	6
Humanistic-Social Course.....	3
	35

Senior Year	
Chemical Engineering 402, 403, 407, 432, 434, 451, 452..	16
Engineering 401, 425	3
English 303.....	3
Communications Elective	3

Technical Electives	12
	34
TOTAL SEMESTER HOURS	138

All electives must be approved by the Head of the Department of Chemical Engineering. Humanistic-Social electives are to be selected from courses offered in the fields of economics, fine arts, government, history, human geography, literature, philosophy, psychology, sociology, or advanced level foreign languages. Technical electives are to be selected from courses offered in the departments of the College of Engineering, or College of Life Sciences, or the Departments of Chemistry, Mathematics or Physics. Nine of the twelve elective hours must be selected from non-required engineering science courses offered by the Department of Chemical Engineering. The Communications elective is to be selected from Speech or English courses.

DEPARTMENT OF CIVIL ENGINEERING

The civil engineer is in the forefront providing constructive counsel on matters vital to mankind. Most people can only talk about urban congestion, environmental pollution, droughts and floods. Civil engineers help to eliminate or greatly reduce the destructive effects of these plagues. They are primarily responsible for planning, designing, and constructing all the world's constructed facilities.

Approved by the Accreditation Board for Engineering and Technology, the curriculum in civil engineering is designed to produce graduates who have the background necessary for the practice of civil engineering and the capacity for further development of mind and character to assume the highest responsibilities of citizenship and of professional engineering.

The up-to-date curriculum provides the fundamentals of engineering and teaches the application of those fundamentals in engineering design. It also helps the student acquire the ability to communicate, to develop a personal value system, and to have a sense of social responsibility and concern for the needs and problems of mankind and the environment. Well-equipped laboratories enhance the classroom lectures: Environmental Engineering, Hydraulics, Materials Testing, Remote Sensing, Soil Mechanics, Stress Analysis and Surveying.

The graduate will have some competence in all of the following areas with emphasis on at least one: structural design, environmental pollution control, hydraulics, hydrology, surveying, transportation, and soil mechanics.

CIVIL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	34
Sophomore Year	
Civil Engineering 254	4
Economics 215	3
Engineering 102	2
Engineering Mechanics 203, 211, 311	9
Mathematics 330, 375	6
Physics 201, 202	6
English 303	3
	36
Junior Year	
Civil Engineering 300, 310, 314, 332, 346, 391	17
Engineering 401	2
Electrical Engineering 226	3
Engineering Mechanics 321	3
Mathematics 350	3
Mechanical Engineering 331	3

Speech 377	3
	33
Senior Year	
Civil Engineering 332, 424, 437, 439, 443, 444	18
Engineering 425	1
Humanistic Social Science Electives	3
Technical Electives	9
	34

TOTAL SEMESTER HOURS	135
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All electives must be approved by the head of the Department of Civil Engineering.

All freshman and sophomore year courses must be satisfactorily completed before registering for any 400 level engineering courses.

CONSTRUCTION ENGINEERING TECHNOLOGY

The program prepares the graduate for the responsibilities of managing and supervising all of the activities related to converting the plans and specifications prepared by engineers and architects into finished facilities. With increasing demand for economical service the construction industry continues to improve its technology as well as its management efficiency.

This four-year curriculum leading to the degree of Bachelor of Science in Construction Engineering and Technology is offered by the Department of Civil Engineering. The program is accredited by the Accreditation Board for Engineering Technology. It is in many ways similar to Civil Engineering but has the following major differences:

- Emphasis is on practical application of engineering science rather than upon the comprehensive understanding of the scientific theories.
- Considerable time is devoted to management and business administration courses.
- Much less time is devoted to mathematics and sciences.

Although not trained to be professional engineers, graduates of this program are qualified to fill many professional positions in construction departments of government agencies; in construction departments of industrial concerns; in manufacturers of construction supplies and equipment; and in construction firms. These jobs may involve contract supervision, inspection or sales as well as supervised design of construction projects. The undergraduate business and management training should provide a big asset in moving up the executive ladder to success.

CONSTRUCTION ENGINEERING TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
Accounting 203	2
Civil Technology 102	1
Economics 215	3
Engineering 102, 151	4
English 101, 102	6
Management 201	3
Mathematics 111, 112, 220	9
Communications/Humanities Elective	3
	31
Sophomore Year	
Architecture 221	3
Civil Technology 273	3
Engineering Mechanics 206, 207	6
Mechanical Technology 215	3
Physics 209, 210, 261, 262	8
Statistics 200	3

Communications/Humanities Elective	3
Mathematics/Science Elective	3
	32
Junior Year	
Civil Engineering 436	3
Civil Technology 210, 372, 373	10
Electrical Engineering 326	3
Engineering 401	2
English 303	3
Mechanical Engineering 326	3
Speech 377	3
Communications/Humanities Elective	3
Math/Science Elective	3
	33
Senior Year	
Business Law 355, 356	6
Civil Engineering 437, 438	5
Civil Technology 343, 345, 471, 473	10
Industrial Engineering 427	3
Engineering Elective	6
	30

TOTAL SEMESTER HOURS 126

All electives must be approved by the Head of the Department of Civil Engineering.

LAND SURVEYING TECHNOLOGY

The Land Surveying Technology curriculum, a two-year program leading to the Associate of Science degree, is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

DEPARTMENT OF COMPUTER SCIENCE

Computer Science at Louisiana Tech is the study of information processing systems. The curriculum is designed to meet three objectives: (1) a general education in mathematics, science, and the humanities; (2) a broad introduction to information processing systems, including the practical and theoretical aspects of the hardware (equipment) and software (procedures) of these systems; (3) an opportunity to prepare a base for specialization in an area of computer application with emphasis on computer systems analysis.

Computer Science at Louisiana Tech places emphasis on the basic concepts of information processing systems and the development of professional techniques. The goal is to expose the student to a depth of knowledge sufficient to form the basis for professional competence and to promote the intellectual maturity required to keep abreast of developments in computer science and to interact with other disciplines.

Students in other departments who wish to minor in computer science are required to take Computer Science 102, 104, 106, 201, 206, 214, 303, 350, 451, and 453.

COMPUTER SCIENCE CURRICULUM

	Semester Hours
Freshman Year	
Computer Science 102, 104, 106	7
English 101, 102	6
Mathematics 111, 112, 230	9
Humanities or Social Science Electives	6
Science Electives	6
	34
Sophomore Year	
Accounting 203, 204	4

Computer Science 201, 206, 214	8
Economics 215	3
Mathematics 231, 232, 308	9
Humanities or Social Science Electives	3
Physics 209, 210	6
	33
Junior Year	
Computer Science 303, 350	6
English 303	3
Mathematics 313	3
Industrial Engineering 400, 402	6
Science Elective	3
Speech 377	3
Technical Electives	9
	33

Senior Year	
Computer Science 424, 453	4
Computer Science Electives	9
Engineering 401	2
Free Electives	3
Humanities or Social Science Electives	6
Technical Electives	9
	33

TOTAL SEMESTER HOURS 133

All electives must be approved by the Head of the Department or by major advisor; technical electives may include up to six hours of Computer Science courses. One Electrical Engineering elective will normally be required.

DEPARTMENT OF ELECTRICAL ENGINEERING

Electrical Engineering is that profession which deals with the application of the fundamental laws of electrical phenomena to the service of mankind. Broadly, electrical engineers are involved in one or more of the following areas: electromagnetics; the design of electronic and solid state devices; the control, conversion and distribution of energy; computing and data processing; communications including transmission and retrieval.

The undergraduate Electrical Engineering Curriculum is a carefully planned program of study designed to meet the challenges of expanding professional opportunities. From foundations in the basic sciences of mathematics, physics and chemistry, the program progresses through the engineering sciences to emphasize the roles of mechanics, thermodynamics and electrical theory in the analysis, synthesis, design and operation of engineering devices and systems. A coordinated laboratory program utilizing modern equipment and facilities seeks to supplement classroom instruction, stimulate creativity and further professional competence. Finally, a variety of courses selected to provide an adequate humanistic and cultural background is included to insure both the recognition and fulfillment of the engineer's responsibilities as a citizen.

The curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET). Graduation from an ABET accredited program is one of the requirements for qualifying as a Registered Professional Engineer in Louisiana as well as most other states. If, in addition to meeting the minimum requirements established for an ABET accredited curriculum the graduate has maintained a relatively good scholastic record, he/she may qualify for further study in the advanced degree program.

The College of Engineering offers the opportunity for graduate study leading to the degree of Master of Science. The

program seeks to build on the basic foundations established by the undergraduate course of study. It is in large measure an individual matter developed jointly by the student and an advisory committee. The study plan may reflect a desire for more specialized undertakings or a continuing interest in the broad, underlying theories of the profession. In each case, the culmination of the program is the required graduate research project, with thesis or dissertation, accomplished with the aid and guidance of a research advisor. The Master of Science program requires approximately one year to complete when pursued on a full-time basis. Those who attain this advanced degree will find a wide range of opportunities for rewarding careers in many areas of business, industry, government and education.

ELECTRICAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	34
Sophomore Year	
Economics 215.....	3
Electrical Engineering 221, 222, 229, 321.....	10
Engineering Mechanics 211.....	3
English 201 or 202.....	3
Mathematics 330, 350.....	6
Mathematics elective.....	3
Physics 201, 202, 261.....	7
	35
Junior Year	
Electrical Engineering 311, 329, 331, 332	
339, 381, 389, 411	18
Engineering Mechanics 203, 301	5
English 303.....	3
Mechanical Engineering 331.....	3
Physics 380.....	2
Oral or Written Communications Elective (Speech 377, English 460 or 463)	3
	34
Senior Year	
Electrical Engineering 402, 405, 442, 461, 471, 481	18
Engineering 401, 425	3
Humanities or Social Science Electives.....	6
Technical Electives	6
	33
TOTAL SEMESTER HOURS	136

All electives (Humanities, Mathematics, and Technical) must be approved by the Head of the Department of Electrical Engineering.

Mathematics electives must be selected from the following: Mathematics 308, 375, 407, 410, 411, 445.

Humanities or Social Science electives must be selected from courses offered in the Departments of Art, Economics, English, Foreign Languages, History or Social Sciences.

Technical electives, not more than three (3) semester hours of which may be mathematics, must be selected from courses offered in the College of Engineering or in the Departments of Mathematics or Physical Sciences. Each student must earn at least the equivalent of sixteen (16) semester hours of design.

ELECTRICAL ENGINEERING TECHNOLOGY

The increasing complexity of the industrial processes and the expansion in research and production has created demand for a new group of specialists known as engineering technologists. These technologists work with professional engineers and scientists, or assume independent responsibility in the production, installation, operation and maintenance of

complex technical apparatus. The engineering technologist organizes the personnel, materials and equipment to design, construct, operate and manage technical projects. The engineering technologist coordinates people, materials and machines, and must possess a variety of skills and practical and theoretical knowledge to get things done.

Electrical Engineering Technology includes the areas of computers, electrical power, communications, instrumentation and control systems. The program combines course work and coordinated laboratory work so that graduates will be capable of performing a variety of technical tasks demanded of them. The course and laboratory work emphasize the latest in solid state and integrated circuit and microprocessor technology throughout. The graduate will also have received training in technical writing, public speaking, documentation, and general industrial practices resulting in rapid advancement in a typical industrial organization. Thus, the program produces graduates qualified for a wide variety of commercial and industrial employment in the rapidly developing electrical-electronics technology field.

The program is accredited by the Accreditation Board for Engineering and Technology (ABET).

ELECTRICAL ENGINEERING TECHNOLOGY CURRICULUM

Freshman Year	Semester Hours
Electro-Technology 100, 170, 171, 180, 181.....	9
English 101, 102.....	6
Engineering 102	2
Mathematics 111, 112.....	6
Humanities or Social Science Electives.....	6
Technical Drafting 101	3
	32
Sophomore Year	
Electro-Technology 182, 260, 261, 270, 272,	
273, 280, 284, 285	21
Mathematics 220.....	3
Physics 209, 210, 261, 262	8
	32
Junior Year	
Chemistry 101, 103.....	4
Engineering Mechanics 206.....	3
Electro-Technology 262, 360, 361, 370, 371, 390.....	12
English 303.....	3
Natural Science Elective	4
Humanities or Social Science Electives.....	3
Mechanical Technology 215.....	3
	32

Senior Year	
Electro-Technology 460, 461, 465, 470, 471, 472.....	11
Electro-Technology Elective	4
Free Electives	9
Humanities or Social Science Electives.....	3
Speech 377	3
	30

TOTAL SEMESTER HOURS 126

All electives must be approved by the Head of the Department of Electrical Engineering or an authorized representative.

INSTRUMENTATION TECHNOLOGY

The Instrumentation Technology curriculum, a two-year program leading to the Associate of Science degree, is presented in the Division of Admissions, Basic and Career Studies section of the catalog.

DEPARTMENT OF GEOSCIENCES

Geosciences encompasses many scientific disciplines including geology, geophysics, oceanography, geochemistry, and astrogeology. These fields touch every facet of modern civilization from the discovery of mineral wealth to the more exotic exploration of the moon and planets.

The Department of Geosciences at Louisiana Tech specializes in the education of geologists. In the past decade there has been a strong demand by the petroleum industry for Tech graduates and it is expected that this demand will continue. Employment opportunities are also available with the U. S. Geological Survey, the Environmental Protection Agency, and other branches of the Federal Government and state geological surveys. A number of geosciences majors participate in a co-op program sponsored by the Water Resources Branch of the U. S. Geological Survey.

The department offers the bachelors and masters degrees in geology.

The Geology Curriculum is planned to give broad and fundamental preparation in the major areas of geology, with a background in mathematics, physics, chemistry, and biological sciences. It is designed for those students planning for a professional career in geology and the earth sciences.

Students in other departments who wish to minor in geology are required to take Geology 111, 112, 121, 122, 209, 302, 305, 315, and three additional hours of geology.

GEOLOGY CURRICULUM

Freshman Year	Semester Hours
Chemistry 101, 102, 103, 104	8
English 101, 102, 201 or 202	9
Geology 111, 112, 121, 122	8
Mathematics 112, 230	6
	31
Sophomore Year	
Engineering 151	2
Geology 209, 210, 211, 315	12
History 101 or 201, 102 or 202	6
Mathematics 231	3
Physics 209, 210, 261, 262	8
Statistics 200	3
	34
Junior Year	
Economics 215	3
English 303	3
Engineering 102	2
Geology 302, 303, 305, 314, 316	15
Geology 320 (Summer Field Camp)	6
Humanities or Social Studies Electives*	3
Technical Electives	3
	35
Senior Year	
English 460 or 461	3
Geology 408, 413, 421, 442	12
Speech 377	3
Humanities or Social Studies Electives	6
Technical Electives	6
	30
TOTAL SEMESTER HOURS	130

* Electives to be chosen with consent of advisor.

DEPARTMENT OF INDUSTRIAL ENGINEERING

Industrial Engineering involves decision making related to the best use of people, material, equipment, and energy to achieve the goals of an organization. The organization may be a corporation, a hospital, a government office, an individual department, or any other group organized to make a product or perform a service. Usually, the aims of the organization include reducing costs. Hence, the Industrial Engineer is often very concerned with cost analysis and control.

If there is one phrase that summarizes the activities of Industrial Engineers it is "the search for a better way." For example, a better way to perform assembly operations on a product, a better way to ship the product to the distributors, a better way to recover the cost of scrap from the manufacturing process, a better way to motivate employees, a better way to assure product quality and reliability, and so on.

For several years, national leaders have been calling for increased productivity by the American people. A special activity of Industrial Engineers is to find ways to increase productivity without increasing the effort required of the individual worker.

The Industrial Engineering Curriculum has been developed to prepare students for meaningful careers in this challenging and important branch of engineering. The success of the program is evidenced by the Accreditation Board for Engineering and Technology, the demand for its graduates in all sectors of the economy, and the many professional accomplishments of the faculty.

INDUSTRIAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	34
Sophomore Year	
Economics 215	3
Electrical Engineering 226	3
Engineering Mechanics 203, 211	6
Industrial Engineering 201, 301	6
Mathematics 330, Math Elective	6
Mechanical Engineering 221	2
Physics 201, 202, 261, 262	8
	34
Junior Year	
Engineering 401	2
Engineering Mechanics 311, 321	6
Humanities/Social Studies Elective	3
Industrial Engineering 400, 402, 409, 425	12
Mathematics Electives	3
Mechanical Engineering 211, 331	5
Speech 377	3
	34
Senior Year	
Economics Elective	3
Engineering 425	1
Engineering Science Electives	3
English 303	3
Humanities/Social Studies Electives	3
Industrial Engineering 401, 404, 406, 408, 411, 412, 424 ..	17
Technical Electives	4
	34
TOTAL SEMESTER HOURS	136

All electives must be approved by the Head of the Department of Industrial Engineering

DEPARTMENT OF MECHANICAL ENGINEERING

The Curriculum in Mechanical Engineering is designed to give the student a basic knowledge of the fundamentals required in the field of mechanical engineering and to give an opportunity to develop ability to use these fundamentals in design and in the analysis and solution of technical problems. This curriculum is approved by the Accreditation Board for Engineering and Technology, Inc., and provides a course of study of 12 quarters and leads to the degree of Bachelor of Science in Mechanical Engineering.

Mechanical Engineering is probably the most diversified of the engineering fields. Because of the diversification, many types of careers are open to the mechanical engineer, including those in research, development, design, production, operations, maintenance, marketing, sales and administration. Typically, many companies interview Mechanical Engineers.

Some major fields of interest are aerospace, computers, robotics, automation and instrumentation, energy conversion, manufacturing, plant engineering, power generation, bioengineering, transportation, consulting and environmental control. Numerous positions are available throughout the country for both men and women in the field of Mechanical Engineering. The successful completion of the undergraduate curriculum also prepares the student to enter a program or graduate study in mechanical engineering. The student interested in the graduate program should talk to his or her advisor about the graduate school option which starts in the junior year.

MECHANICAL ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	34
Sophomore Year	
Electrical Engineering 226	3
Engineering Mechanics 203, 211, 311	9
Mathematics 330, 350	6
Mechanical Engineering 202, 211, 212, 221, 291	9
Physics 201, 202	6
	33
Junior Year	
Electrical Engineering 336	3
Engineering Mechanics 321	3
English 303	3
Mechanical Engineering 300, 322, 331, 332, 342, 361, 381	18
Humanistic/Social Science Elective	9
	36
Senior Year	
Engineering 401, 425	3
Mechanical Engineering 400, 451, 462, 463, 471, 472, 482, 483, 492, 493	21
Basic Science Electives	3
Technical Electives	9
	36
TOTAL SEMESTER HOURS	139

All electives must be approved by your advisor and the Head of the Department of Mechanical Engineering.

The technical electives program must include one of the following technical electives: Mech. Engr. 432, 436, 455, 467, 476 or 478.

The humanities/social science program must include Economics 215 and Engineering 401, have a minimum of three rubrics, have a minimum of six semester hours in one of the

rubrics and have a minimum of three semester hours that are numbered 300 or above.

DEPARTMENT OF PETROLEUM ENGINEERING

The Petroleum Engineering Curriculum is designed to prepare its graduates for useful employment or graduate study in the petroleum industry, particularly in the areas concerned with drilling, production, and reservoir, by emphasizing the application of basic studies in mathematics, chemistry, physics, geology, and engineering sciences. The curriculum provides for a four-year course of study leading to the Bachelor of Science degree in Petroleum Engineering. Briefly, the petroleum engineer is concerned with the drilling and completion of oil and gas wells, the lifting and production of oil and gas, deliverability, the development of future drilling and producing operations, enhanced recovery of petroleum, movement of oil and gas through pipelines, the collection of data and estimation of present value of future worth, and the removal of sand, water or gas from oil before it is transported.

The laboratories are designed to familiarize the student with practical and theoretical problems encountered in the petroleum industry and to promote communication of technical activities. Throughout the course of study, whenever practical, inspection trips are utilized to illustrate equipment and problems studied.

Although not a requirement, students are encouraged to find summer employment in the petroleum industry.

PETROLEUM ENGINEERING CURRICULUM

Freshman Year	Semester Hours
Freshman Engineering Curriculum	34
Sophomore Year	
Economics 215	3
Engineering Mechanics 211	3
Geology 111, 112, 121	7
Mathematics 330, 350	6
Petroleum Engineering 200, 202, 305	10
Physics 201, 202	6
	35
Junior Year	
Chemical Engineering 321, 322	4
Chemistry 311	3
Computer Elective	3
Engineering Mechanics 203, 311, 321	9
English 201 or 202, 303	6
Math Elective	3
Petroleum Engineering 311, 404	6
	34
Senior Year	
Communications Elective (English 460, 463, or Speech 377)	3
Electrical Engineering 226	3
Engineering 425	1
Geology 315	3
Humanistic/Social Elective	6
Petroleum Engineering 405, 406, 410, 414, 415, 424, 425, 450	18
	34
TOTAL SEMESTER HOURS	137

ELECTIVES: Twenty-one semester hours of electives must be approved by the Head of the Department of Petroleum Engineering. Twelve must be Humanities/Social Studies

courses selected from the fields of history, government, literature, sociology, philosophy, psychology, fine arts or advanced foreign languages: three must be selected from courses offered in the Department of Mathematics, and cannot be a prerequisite for a course specifically required in the student's curriculum; three must be in communications, and three must be in the computer applications.

PETROLEUM TECHNOLOGY

The Petroleum Technology curriculum, a two-year program leading to the Associate of Science Degree, is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

College of Home Economics

OFFICERS OF INSTRUCTION

JEANNE M. GILLEY, Dean

LYNDA H. CLEMENTS, Associate Dean

NANCY M. TOLMAN, Director of Research and Graduate Studies

PURPOSE AND OBJECTIVES

The purpose of the Louisiana Tech University College of Home Economics is to prepare students for home economics related careers. Undergraduate degree programs in home economics include Consumer Services, Dietetics, Early Childhood Education, Fashion Merchandising, General Home Economics, Home Economics Education, and Food Service Supervision. These degree programs prepare students for home economics related careers in education, business, cooperative extension, and government or family service agencies which are concerned with the well-being of individuals and families.

OBJECTIVES

I. To provide suitable curricula, instruction, and course content for a broad education in home economics and a strong foundation for specialization in one or more professional areas.

II. To continuously evaluate aspects of program development and implementation to keep curricula current with regard to changing societal needs, technological advances, and emerging career opportunities.

III. To provide opportunities for observation and research to discover the changing needs of individuals and families and the means of satisfying those needs.

IV. To provide workshops, seminars, courses, programs, and consultants to the university community, practicing professionals, and the community-at-large to improve professional competence and/or personal/family development.

CURRICULA

Programs in home economics are planned to meet the highest professional standards. Tech's College of Home Economics is accredited by all professional accrediting bodies which evaluate home economics programs. The College of Home Economics is accredited by the Council for Professional Development of the American Home Economics Association. The Coordinated Undergraduate Program in Dietetics is accredited by the American Dietetic Association. Additionally, Home Economics teacher preparation programs are accredited by the National Council for the Accreditation of Teacher Education and meet state certification standards.

Home Economics is an applied field of study built upon many disciplines, to promote the welfare and well-being of individuals, families and homes in an ever-changing society. The program includes involvement in real life situations and offers experiences beyond the North Louisiana area. Students may travel to Paris, Rome, London, New York and Dallas as a part of fashion study options. Interns work in metropolitan fashion centers in Dallas and other cities. Dietetics majors receive clinical instruction in varied health care and food service facilities in Shreveport and Ruston. The Tech Early Childhood Education Center serves as an early childhood demonstration laboratory for participation with young children. Educational and cultural experiences prepare graduates for varied professional roles in business, education, industry and government as well as for citizenship and personal development. Louisiana Tech University, the third university in the south and

the first university in Louisiana to offer home economics, remains a leader in the field.

The College of Home Economics confers Bachelor of Arts, Bachelor of Science, and Master of Science degrees. The Bachelor of Arts degree is conferred on those completing options in consumer services, fashion merchandising, or general home economics. The Bachelor of Science degree is conferred on those who major in dietetics (Coordinated Undergraduate Program) or home economics education with emphasis on secondary teaching or early childhood education: nursery-kindergarten. Planned programs for minors and second teaching fields are available to provide for additional flexibility of employment.

The two-year associate degree program in food service offered in the College of Home Economics is outlined in this bulletin under the Division of Admissions, Orientation, Basic and Career Studies.

ADMISSION

General admission requirements to the University apply to entering freshmen and transfer students. All entering freshmen enroll in the Division of Admissions, Orientation, Basic and Career Studies and remain in this division until they have met the requirements for admission to the College of Home Economics. While in that division, students interested in home economics should identify home economics as the major and should be advised by home economics faculty members.

UPPER DIVISION: Students are eligible to apply for upper division status when they have earned, with a 'C' average or above, at least thirty semester hours credit including grades of 'C' or above in the following: English 101, 102, Home Economics (6 hours), Speech 110, and Health and Physical Education activities. They must have completed Home Economics 127.

Students majoring in the Home Economics Education option must meet all requirements for upper division established by the Teacher Education Council. In addition to the upper division requirements of all home economics majors, those majoring in the Home Economics Education options must complete Education 200 (3 hours with a grade of 'C' or above), and science (3 hours) and have an overall grade point average of 2.2 on all hours pursued. All applications must be turned in to the Home Economics Dean's office at least one week prior to the beginning of the quarter before enrolling in courses requiring upper division status.

Students enrolling in education or psychology courses numbered 200 or above and in home economics courses numbered 300 or above must have upper division status. Exception is Education 200.

SCHOLASTIC STANDARDS

Requirements for entrance to Louisiana Tech University are also requirements for the College of Home Economics. Students transferring into home economics from another institution should request that the Office of Admissions, Orientation, Basic and Career Studies forward a copy of official transcripts to the College of Home Economics for evaluation. ACT scores are required of all students. A grade of 'C' or better is considered acceptable for transfer of credit for required or equivalent courses in the home economics degree programs. Transfer students are required to complete a specific body of courses at Louisiana Tech University.

All students are advised to repeat home economics courses in which they have grades less than 'C' before undertaking the

next course of the subject matter series. For teacher certification, a grade of 'C' or better is required in all home economics and professional education courses. An average of 2.5 is required for enrollment in student teaching at both the secondary and early childhood levels. An average of 2.5 is required for graduation from the home economics education options, and an acceptable score on the NTE is required for certification.

CATALOG REQUIREMENTS AND CHANGES

Home Economics policy, curriculum, and course changes are posted on the bulletin board near the dean's office (CTH 251). Posted notices officially update the University bulletins and are binding on students as if in the published documents. In addition, job and scholarship announcements, test dates, and planned course schedule changes are displayed in the hall. Students are advised to check the boards frequently.

Each student is responsible for meeting catalog requirements for graduation, including scheduling of infrequently offered courses and completing courses in sequence. Students should consult with their advisors during preregistration, registration, and when problems arise. Students with 60-70 hours credit should complete and secure advisor's approval of an up-to-date plan of study for their remaining quarters at Tech.

ELECTIVES AND THE MINOR IN GENERAL HOME ECONOMICS

Some courses in home economics are open to non-majors. Minors in fashion merchandising and early childhood education have been outlined. Other minors consisting of 21 hours in general home economics or a specialized area may be planned with approval of the Dean of Home Economics and the student's advisor. Suggested electives for men and women in other colleges include the following:

Family and Child Studies:

100, Marriage and Family Living; 201, Introduction to Child and Family Development; 300, Parenting; 307, Family Interpersonal Relationships; 400, Contemporary Family Living; 401, Creative Activities and Organization of Preschool Programs; 410, Multi-Cultural Family Studies; 431, Infant Development.

Fashion and Textiles:

128, Clothing Selection; 219, Textiles; 438, Historic Costume; 498, Fashion Merchandising International.

Food and Nutrition:

103, Nutrition and Weight Control; 202, Collegiate Cooking; 203, Nutrition; 223, Nutrition Education.

Family Management and Consumer Studies:

236, Household Equipment; 246, Microcomputers in Home Management I; 416, Home Furnishings; 426, Housing; 446, Microcomputers in Home Management II.

MINOR IN FASHION MERCHANDISING

A minimum of 21 hours to be selected from:

Fashion & Textiles 118, 128, 158, 219, 228, 308, 338, 348, 358, 388, 419, 428, 438, 488, 498; Family & Child Studies 307; Family Management & Consumer Studies 416, 426; and Home Economics 406.

MINOR IN EARLY CHILDHOOD

Required home economics courses include:

Family & Child Studies 201, 301, 401, 411; Food & Nutrition 203 or 223. Seven additional hours may be selected from Family & Child Studies 100, 300, 307, 311, 400, 410, 421, 431, 451; Food & Nutrition 233; and Home Economics 406.

Minor does not meet certification requirements.

SCHOLARSHIPS AND LOANS

In addition to university and state supported scholarships awarded through the Division of Financial Aid, home economics majors may also apply separately for Home Economics Alumni Scholarships which range from \$200 to \$1500. Selections are based on high school academic records, ACT scores and participation in extracurricular activities. Consideration of applicants is not limited to those who have had high school home economics. Request applications from the College of Home Economics. Deadline for applying is March 1.

Clyde and Mildred Mobley and Kola Mobley Fouché Memorial Scholarship

This scholarship was established by Mr. and Mrs. Laurie S. Mobley to honor his sisters, outstanding Louisiana Tech Home Economics graduates. The amount of \$1500 is awarded to a freshman.

F. C. Haley

Mr. F. C. Haley, a 1931 Tech graduate and a prominent Louisiana educator, established a scholarship of \$1200. This award is designated for a first year home economics student.

Rhoda L. Chambless

The family of Mrs. Rhoda L. Chambless established this scholarship as a memorial. The amount of \$500 is awarded annually to a junior home economics major.

Selber Brothers Scholarship

To recognize excellence in the field of fashion merchandising and to recognize worthy students, Selber Brothers, a large department store in North Louisiana, established an award of \$1000. This scholarship is awarded to an outstanding fashion merchandising student at the sophomore level.

Laurie S. and Helen Mobley Home Economics Scholarship

A scholarship of \$1500 is awarded to a junior home economics major annually. Mr. and Mrs. Laurie S. Mobley established this scholarship.

BACHELOR OF ARTS DEGREES

The Bachelor of Arts Curriculum in Home Economics includes options in Consumer Services, Fashion Merchandising and General Home Economics.

CONSUMER SERVICES OPTION

This option provides preparation for students who desire employment with governmental and private consumer service agencies and/or businesses related to management and consumer education, household equipment, housing, and home economics extension. Minors in business and journalism combine well with the option.

Freshman Year	Semester Hour
Art 175.....	3
English 101, 102.....	6
Family & Child Studies 100.....	3
Fashion & Textiles 118.....	2
Food & Nutrition 112.....	3
Health and Physical Education.....	2
History, American.....	3
Home Economics 127.....	1
Mathematics 114.....	3
Psychology.....	3
Speech 110 or 377.....	3
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Sophomore Year	Semester Hour
Economics 215.....	3
English 201, 202.....	6
Family & Child Studies 201.....	3
Family Management & Consumer Studies 236, 256.....	6

Fashion & Textiles 228, 219	5
Food & Nutrition 203, 212	6
Social Science Elective	3
	32
Junior Year	
Accounting 203	2
Communication Elective	3
Electives	8
Family & Child Studies 307	3
Home Economics 327	2
Home Economics Electives	6
Marketing 300	3
Social Science Elective	3
Speech 340, 360, or 361	3
	33
Senior Year	
Electives	12
Family Management & Consumer Studies 416, 426, 436, 456	11
Food & Nutrition 412	3
Home Economics 457	1
Science	6
	33
TOTAL SEMESTER HOURS	130

FASHION MERCHANDISING OPTION

Students are prepared for careers in fashion production, retailing, and communications. Minors in business, marketing, art, and journalism are possible. Fashion & Textiles courses including 498C, 498I, 428, and 338 are also recommended electives. Students electing Fashion & Textiles 498I are required to pay a supervision fee.

Freshman Year	Semester Hours
Art 175	3
English 101, 102	6
Family & Child Studies 100	3
Fashion & Textiles 118 or 119, 128, 158	6
Health and Physical Education Activities	2
Home Economics 127	1
Mathematics 114	3
Science	3
Social Science Elective	3
Speech 110 or 377	3
	33
Sophomore Year	
Accounting 203	2
Economics 215	3
English 201, 202	6
Family & Child Studies 201	3
Family Management & Consumer Studies 256	3
Fashion & Textiles 219, 228, 268	7
Food & Nutrition 203	3
History, American	3
Marketing 235	3
	33
Junior Year	
Electives	3
Family & Child Studies 307	3
Fashion & Textiles 308, 348, 358, 388	11
Foreign Language	6
Marketing 300, 307	6
Psychology	3
	32

Senior Year	
Electives	9
Family Management & Consumer Studies 416, 456	5
Fashion & Textiles 419, 438, 488	9
Home Economics 457	1
Home Economics Electives	6
Management 470 or Advanced Marketing	3
	33
TOTAL SEMESTER HOURS	131

GENERAL HOME ECONOMICS OPTION

This option provides opportunity for a broad based education which may emphasize several areas within home economics or a combination of home economics and a secondary field of interest.

Electives should be carefully planned and selected with the advisor's approval. Restricted electives must be 300 and 400 level courses.

Freshman Year	Semester Hours
Art 175	3
Elective	3
English 101, 102	6
Family & Child Studies 100	3
Fashion & Textiles 128 or 228	2
Health & Physical Education Activities	2
Home Economics 127	1
Home Economics Electives	5
Mathematics 114	3
Speech 110	3
Elective	3
	34
Sophomore Year	
Economics 215	3
Elective	3
English 201, 202	6
Family & Child Studies 201	3
Family Management & Consumer Studies 246, 256	6
Food & Nutrition 203	3
Food & Nutrition 212, or Fashion & Textiles 219, or Family Management & Consumer Studies 236	3
History, American	3
Psychology	3
	33
Junior Year	
Communications Electives	6
Electives	6
Restricted Elective	3
Family & Child Studies 307	3
Family Management & Child Studies 446	3
Health & Physical Education	2
Restricted Home Economics Electives	9
	32
Senior Year	
Restricted Electives	8
Family & Child Studies 400 or Family Management and Consumer Studies 426 or 436	3
Family Management & Consumer Studies 456	3
Home Economics 457	1
Restricted Home Economics Electives	6
Social Science Electives	6
Science	6
	31
TOTAL SEMESTER HOURS	130

BACHELOR OF SCIENCE DEGREES

The Bachelor of Science degrees include Home Economics Education options for secondary teaching and Early Childhood Education: Nursery-Kindergarten and Dietetics.

HOME ECONOMICS EDUCATION

The Home Economics Education Curriculum has two options: Teacher Education and Early Childhood Education: Nursery-Kindergarten. The undergraduate teacher education programs are developed and maintained through the joint activities of the faculty of the College of Home Economics and the Louisiana Tech University Teacher Education Council. The Teacher Education Option prepares a student to teach vocational home economics in Louisiana under the provisions of the federal Education Amendments of 1976 as outlined in the State plan. The Early Childhood Education Option prepares the student to teach nursery school and kindergarten and for careers with young children in child care centers and related programs.

TEACHER EDUCATION OPTION (Secondary)

Freshman Year	Semester Hours
Art 175.....	3
English 101, 102.....	6
Family & Child Studies 100.....	3
Fashion & Textiles 118.....	2
Food & Nutrition 112.....	3
Health & Physical Education Activity.....	2
Home Economics 127.....	1
History 201 or 202.....	3
Mathematics 110, 114 or 125.....	6
Speech 110.....	3
Science.....	3
	35

Sophomore Year	
Education 200.....	3
English 201, 202.....	6
Family & Child Studies 201.....	3
Family Management & Consumer Studies 236, 256.....	6
Fashion & Textiles 219, 228.....	5
Food & Nutrition 203.....	3
Psychology 204, 206.....	6
Science.....	3
	35

Junior Year	
Economics 215 or Sociology 312.....	3
Education 390.....	1
Electives.....	5
Family & Child Studies 307.....	3
Fashion & Textiles 338.....	2
Food & Nutrition 203.....	3
Health & Physical Education.....	2
Home Economics 327.....	2
Political Science 201.....	3
Science, Biological.....	3
Science, Physical.....	3
Special Education 300.....	3
	33

Senior Year	
Education 402, 403, 404, 416.....	17
Family Management & Consumer Studies 426, 436, 456.....	9
Food & Nutrition 412.....	3
Home Economics 405, 457.....	4
	33

TOTAL SEMESTER HOURS.....136

EARLY CHILDHOOD EDUCATION: NURSERY-KINDERGARTEN OPTION

Freshman Year	Semester Hours
Art 101.....	2
English 101, 102.....	6
Family & Child Studies 100.....	3
Fashion & Textiles 128 or 228.....	2
Food & Nutrition 112.....	3
Health & Physical Education Activity.....	2
Health & Physical Education 150.....	2
Home Economics 127.....	1
Music.....	2
Science, Biological.....	3
Social Science Elective.....	3
Speech 110.....	3
	32

Sophomore Year	
Education 200.....	3
English 201, 202.....	6
Family & Child Studies 201, 301.....	6
Family Management & Consumer Studies 256.....	3
Food & Nutrition 203, 233.....	4
History 201 or 202.....	3
Library Science 201 or 450.....	3
Psychology 204.....	3
Science, Physical.....	3
	34

Junior Year	
Education 323, 324.....	6
Electives.....	5
Family & Child Studies 300, 307, 311, 401.....	12
Mathematics 303, 304.....	6
Science.....	6
	35

Senior Year	
Education 441, 420.....	6
Family & Child Studies 400, 411, 421, 431.....	15
Family Management & Consumer Studies 426, 456.....	6
History 460 or Geography 310.....	3
Home Economics 457.....	1
Special Education 300.....	3
	34

TOTAL SEMESTER HOURS.....135

COORDINATED UNDERGRADUATE PROGRAM (CUP) IN GENERAL DIETETICS

The dietetic curriculum is a coordinated undergraduate program which is accredited by The American Dietetic Association. The program is designed to prepare fully qualified dietitians within a four year period rather than the traditional five years required in internship and traineeship programs. Course work and field experience are integrated at affiliations in Ruston and Shreveport. Upon successful completion of the program, a student is awarded the B.S. degree, meets clinical and academic requirements for membership in the American Dietetic Association and is eligible to take the examination for qualification as a registered dietitian (R. D.). Dietetic Graduates are prepared to assume both administrative and therapeutic positions in public health, hospitals, and other health care institutions as well as management positions in food service systems. Careers are also available in research and education as they relate to nutrition and management.

The field experience phase of CUP begins at the junior level. Applications are available from the program director. Entrants

into the program at this point are required to have completed a specific body of course work and to have an overall GPA of 2.50. Summer work experience in a health care facility is strongly recommended during the sophomore or junior years. The senior year in CUP will be spent in Shreveport, where most of the field experience facilities are located. Students are required to pay a Professional Program fee during the senior year.

COORDINATED UNDERGRADUATE PROGRAM IN GENERAL DIETETICS CURRICULUM

Freshman Year	Semester Hours
Chemistry 130, 131, 132	10
Electives.....	1
English 101, 102.....	6
Food & Nutrition 112, 203, 212.....	9
Home Economics 127	1
Mathematics 110.....	3
Speech 377 or 110.....	3
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	33
 Sophomore Year	
Bacteriology 210 or 212	3
English 201, 202 or 260.....	6
Economics 215.....	3
Food & Nutrition 207, 213, 243.....	7

Elective	1
Home Economics Elective	3
Psychology 204.....	3
Sociology 205 or 201	3
Zoology 225.....	3
	<hr/>
	32

Junior Year	
Elective	3
Food & Nutrition 222, 352, 362, 372, 382, 404, 412, 414, 423, 433 483, 493.....	24
Home Economics 405	3
Management 311 or 470	3
	<hr/>
	33

Senior Year	
Food & Nutrition 452, 453, 454, 455, 462, 463, 464 465, 473, 474, 482	36
	<hr/>
	36
 TOTAL SEMESTER HOURS	134

THE GRADUATE PROGRAM

Students may earn a Master of Science Degree in Home Economics.

College of Life Sciences

OFFICERS OF INSTRUCTION

HAL B. BARKER, Dean

JOHN A. WRIGHT, Associate Dean; Head, Dept. of Agronomy Horticulture

JOHN L. MURAD, Director, Division of Research

HAROLD G. HEDRICK, Director, Graduate Studies

LARRY D. ALLEN, Head, Department of Agriculture-Education—Agriculture-Business

C. REID MCLELLAN, JR., Head, Animal Industry

DALLAS D. LUTES, Head, Department of Botany and Bacteriology

J. LAMAR TEATE, Director, School of Forestry

VIRGINIA R. PENNINGTON, Head, Division of Nursing

MARGARET H. PEASLEE, Head, Department of Zoology

AIM

The aim of the College of Life Sciences is to give the student a scientific knowledge of the surrounding world, stressing the all-important role of animals and plants in the economy of nature, and to broaden and deepen the student's understanding and appreciation of the environment, thus offering preparation for a professional career and for a happier, more complete, satisfying, and productive life.

ORGANIZATION AND CURRICULA

The College of Life Sciences is organized into the Departments of Agronomy-Horticulture, Animal Industry, Botany-Bacteriology, Agricultural Education and Agriculture Business, Zoology, the School of Forestry, the Division of Nursing, and the Division of Research. It offers 10 four-year curricula leading to the degree of Bachelor of Science, a two-year Pre-Nursing Curriculum (Interinstitutional with Northwestern State University) leading to a Bachelor of Science degree, a two-year nursing curriculum leading to an Associate of Science degree, and a Basic-Life Sciences one-year program. The curricula offered are:

AGRICULTURE-BUSINESS

AGRICULTURAL EDUCATION

ANIMAL SCIENCE (Including Pre-Veterinary Medicine, Equine and Dairy Science)

AGRONOMY (Crop and Soil Science and Integrated Pest Management)

BOTANY

FORESTRY (Options: Forestry-General, Forestry-Business, Forestry-Recreation, Forestry-Wildlife, Forestry-Utilization)

HORTICULTURE (General, Floral and Landscape Design)

MICROBIOLOGY (BACTERIOLOGY)

NURSING (2 options)

WILDLIFE CONSERVATION (Biology)

ZOOLOGY (Including Pre-Medical and Pre-Dental Options and other pre-professional areas such as physical therapy and many others.)

The curricula are designed to furnish a well-balanced educational program based on the cultural needs, the practical interests, and the citizenship responsibilities of young men and women. They offer essential instruction in the sciences; namely, botany, bacteriology, chemistry, zoology, physics and business, and the humanities and social studies, as well as a comprehensive education in one or more of the special fields of the College.

Students entering the Professional Officer's Course in Air Force ROTC may use credits earned in the POC (300-400

level) to satisfy general elective requirements. Thus, with proper planning and pre-arrangement with the head of the department, all Air Force aerospace studies courses may be used in satisfying degree requirements.

The Master of Science degree in Life Sciences is offered with (1) thesis option (30 hours) and (2) the non-thesis option (36 hours). The Master's-plus-30 may also be earned in Life Sciences.

INTERNSHIP

Students majoring in animal science, agriculture-business, agronomy, dairying, horticulture, wildlife management, and agriculture education may elect to participate in an internship program during one term near the completion of their regular course work. In curricula employing this approach, students will register for 9 semester hours of course work, and be placed on cooperating farms or with business firms where they will receive first-hand practical experiences. In addition to credit received the students usually become employees of the cooperating agency and are paid for their services.

Internships have as their major purpose the development of professional competency, by imparting general and specific skills, basic and applied knowledge and by assisting the student in the transition from school to job. The intern experience may provide the student an entree for his first job after graduation.

More and more students without farm backgrounds are enrolling in agriculture; the internship is a means of providing certain practical experiences to such students. Advances are being made very rapidly in all phases of scientific and business agriculture, thus making it difficult to maintain up-to-date laboratory facilities at reasonable costs on college campuses; the internship program can adequately supplement where the on-campus laboratory ceases to be adequate.

Experience in a real-work environment enables the prospective student employee to apply classroom theory on the job under the supervision of a competent university faculty member and an experienced representative of the cooperating agency or business.

All internship programs require a permission form signed by the intern's parent, spouse or guardian.

SCHOLARSHIPS

Scholarships are available in the College of Life Sciences; some are general and offered to any student in the College of Life Sciences, others are departmental, including several ALUMNI FOUNDATION AWARDS. A student wishing to make application for a departmental scholarship should contact the department head in the field of interest.

THE BLOCK AND BRIDLE CLUB-ALUMNI SCHOLARSHIP of \$300 is awarded annually to one or more beginning animal science freshmen.

BILL AND CAROLYN SULLIVAN MEMORIAL SCHOLARSHIP of \$300 is awarded annually to a sophomore or junior Block & Bridle Club student.

LADIES RACING AUXILIARY SCHOLARSHIP of \$500 is awarded annually to an Animal Science student specializing in Equine Science.

The C. G. HOBGOOD MEMORIAL SCHOLARSHIP of \$150 is awarded annually to an advanced student in the Department of Agronomy-Horticulture.

THE M. HAYNE FOLK, JR., MEMORIAL SCHOLARSHIP of \$150 is awarded annually to a sophomore, within the College of Life Sciences, having high academic achievement and financial need.

THE MARY JARRELL NURSING SCHOLARSHIP is awarded annually to six selected students majoring in A.D. Nursing.

ZOOLOGY PREMEDICAL/PREDENTAL FUND Annual awards to one or more entering freshmen students generally amount to \$300-\$600 for the freshman year. To be eligible, a student must major in zoology and have medicine or dentistry as a career goal and maintain at least a 3.0 average during the freshman year.

OUTSTANDING FRESHMAN PREMEDICAL/PREDENTAL ZOOLOGY STUDENT Awards of \$100-\$300 to one or more outstanding Zoology majors at the end of their freshman year (completion of 30 semester hours). Eligible students are Zoology majors with career goals in medicine or dentistry.

MARY VIRGINIA CAGE MEMORIAL SCHOLARSHIP Annual award from funds contributed by the alumni, family and friends of Mary Virginia Cage to an outstanding graduating senior premedical student who is a major in the Department of Zoology.

SCOTT M. WEATHERSBY ENDOWMENT AWARD An annual award from funds generated by the Scott M. Weathersby Endowment. Presented to the Outstanding Graduating Senior Zoology Student.

The School of Forestry offers to certain forestry students the scholarships listed below:

THE LOUISIANA TECH FORESTRY ALUMNI ASSOCIATION. An annual award of \$600 to one or more selected forestry students.

SCHOOL OF FORESTRY FRESHMEN AWARDS. An annual award of \$300 one or more beginning forestry freshmen.

RICHARD M. SISK TRUST FUND. An annual award of \$300 to one or more beginning forestry freshmen.

THE LOUISIANA FORESTRY FOUNDATION. Two annual awards of \$1,000 and \$750 to selected forestry students.

SEEDLING AND SAPLING CLUB OF THE LOUISIANA FORESTRY ASSOCIATION. An annual award of \$75-\$100 to an outstanding forestry senior.

WILLAMETTE INDUSTRIES. An annual award of \$825 to a selected forestry student.

THE WALTER KELLOGG FORESTRY SCHOLARSHIP. An annual award of \$500 each to two or more selected forestry students from Ouachita Parish or adjoining area.

THE C. A. REED FORESTRY SCHOLARSHIP. An annual award of \$500 each to two or more selected forestry students from Lincoln-Union parishes or adjoining area.

LLOYD P BLACKWELL SCHOLARSHIP \$200 per quarter.

FACILITIES

The main University campus maintains adequate classrooms, laboratories, a library, and equipment for effective instruction in the basic sciences and in the other cultural subjects which are required in the various curricula in the College of Life Sciences, whereas the agriculture campus, consisting of approximately 825 acres, provides the facilities which are devoted specifically to instruction, research and demonstrational work in the agricultural sciences. Botany and Zoology are domiciled on the main campus in Carson-Taylor Hall. Nursing is housed in George T. Madison Hall.

Located on the agriculture campus are Reese Hall, which houses offices, classrooms and laboratories; a Jersey-Holstein herd and modern dairy facilities which provide milk for the

campus; a Dairy Processing Plant, which is equipped for pasteurizing and packaging milk, making cheeses, ice cream, butter and other dairy products. A modern Meats Laboratory provides facilities for training students in meat processing and merchandizing. Paddocks, stalls, round pens, a riding arena and a 1/2 mile training track provides space for diversified activities of the equine program.

A new Forestry-Wildlife-Plant-Sciences complex, Lomax Hall, provides laboratory and greenhouse space for Forestry, Crops and Soils, Pest Management and Horticulture. A new display greenhouse provide space for large plant specimens and exotic plantings.

Also located on the agriculture campus are numerous other facilities such as: a sawmill, a dry kiln, wood utilization laboratories, a wood working shop, a weather station, farm machinery buildings, barns for dairy and meat animals, the farm supervisor's home, fields, forests, nurseries, vegetable and flower gardens, a 50-acre arboretum, pastures and ponds.

DIVISION OF LIFE SCIENCES RESEARCH

The Division of Life Sciences Research is an integral part of the educational processes of this university. The primary purpose of the Division is to stimulate, support, and facilitate the activities related to all areas of research. The Research Division was created to encourage faculty and student participation in research programs of creativity and originality. The Division is the administrative office for the coordination of research conducted by various units within the College of Life Sciences.

Funds to finance research projects are obtained from successful awards on research proposals, research contracts, grants, operating funds within the University and/or contribution by friends of the University. Extramural funding is ordinarily from state and federal granting agencies. In-House Research projects are strongly encouraged through brief research proposals submitted to the Research Director for consideration and funding.

BASIC LIFE SCIENCES DIVISION

The Basic Life Sciences Division is designed for the students who are interested in some area of Life Sciences but who do not know what department to choose or what curriculum to pursue. The Associate Dean will serve as advisor to these students helping them toward the selection of a major.

BASIC LIFE SCIENCES ONE-YEAR PROGRAM

Freshman Year	Semester Hours
English 101, 102.....	6
Mathematics (111 & 112) or (110, 114)	6
Science - Botany 101 and 104 and Zoology 111 or 105, 112	8
Life Sciences 101	1
Professional or Technical Courses	8
(In field of possible interest)	
Free Elective.....	3
TOTAL SEMESTER HOURS	32

DEPARTMENT OF AGRICULTURAL EDUCATION & AGRICULTURE BUSINESS

The curriculum in agricultural education is organized to prepare students for teaching agriculture in secondary schools as well as many other agriculture related occupations.

The agriculture teacher training section is administered by the College of Life Sciences in cooperation with the College of Education. The program is developed and maintained by the agricultural education faculty and the Louisiana Tech Teacher

Education Council. Students in agricultural education must meet the same general requirements outlined for those seeking admission to teacher education in the College of Education's upper division.

Service courses in technical agriculture are provided to give the student thorough training in the areas of plant science, animal science, forestry, soils, farm management, and farm mechanics.

The curriculum in agricultural education leading to a Bachelor of Science degree requires 144 semester hours, nine of which are earned in selected high schools in the area as apprentice teachers.

Agricultural education graduates have employment opportunities in many other fields such as the cooperative extension service, banking, farm management, federal and state government, research, sales and service for agricultural businesses, and higher education.

The department sponsors an active collegiate chapter of Future Farmers of America to provide practical experience in this important leadership activity.

AGRICULTURE-BUSINESS

The general Agriculture-Business Curriculum is designed to train students in the basic agricultural sciences, business, and the operation of a farm. Students are qualified for employment in the agricultural-related businesses, and the many specialized jobs in industry requiring fundamental knowledge of these two fields.

The department sponsors the Collegiate Farm Bureau, an organization designed to provide leadership opportunities for students enrolled in agriculture.

AGRICULTURAL EDUCATION CURRICULUM

Freshman Year	Semester Hours
Agricultural Engineering 209.....	1
Agronomy 101.....	3
Animal Science 101.....	3
Botany 101, 104.....	4
English 101, 102.....	6
Health and Physical Education.....	2
Math 110, 114.....	6
Social Science elective.....	3
Speech 110.....	3
Zoology 105.....	3
Agricultural Elective.....	2
	<hr/> 36

Sophomore Year	
Agricultural Education 250.....	3
Agricultural Engineering 211 or 215.....	2
Bacteriology 210.....	3
Chemistry 130, 131, 132.....	10
Animal Science 201 or 202.....	6
Agricultural Elective.....	3
Education 200.....	6
English 201, 202.....	6
Economics 215.....	3
	<hr/> 36

Junior Year	
Agricultural Education 450.....	3
Agronomy 200, 202, 211.....	7
Economics 320.....	3
Education 380, 403.....	6
Forestry 213 or Plant Science elective.....	3
Health and Physical Education.....	2
History 201, 202.....	6

Horticulture 306 or Horticulture elective.....	3
Psychology 206.....	3
	<hr/> 36

Senior Year	
Agricultural Education 301.....	3
Agricultural Engineering 320 or Agri- Engineering elective.....	3
Agriculture 411.....	1
Animal Science 301.....	3
Agricultural Electives.....	4
Economics 402 or 430.....	3
Education 401, 404, 416.....	13
Special Education 300.....	3
Veterinary Science 301 or 401.....	3
	<hr/> 36

TOTAL SEMESTER HOURS 144

AGRICULTURE-BUSINESS CURRICULUM

Freshman Year	Semester Hours
Agricultural Engineering 211.....	2
Agronomy 101.....	3
Animal Science 101.....	3
Botany 101, 104.....	4
Chemistry 130, 131, 132.....	10
English 101, 102.....	6
Life Sciences 101.....	1
Mathematics 110, 114.....	6
	<hr/> 35

Sophomore Year	
Agricultural Engineering 110, 206, 209, 210, or 215.....	4
Accounting 203, 204.....	4
Agronomy 200, 202, 211.....	7
Bacteriology 210.....	3
Economics 215.....	3
Management 201.....	3
Psychology 102.....	3
Speech 110 or 377.....	3
Zoology 105.....	3
	<hr/> 33

Junior Year	
Accounting 210.....	3
Agricultural Engineering 309, 320.....	6
Agronomy 307.....	3
Animal Science 301.....	3
Business Law 355, 356 or 441.....	6
Economics 320.....	3
English 303.....	3
Forestry 101 or 213.....	2-3
Life Sciences 300.....	3
Marketing 300.....	3
	<hr/> 35-36

Senior Year	
Agriculture 411.....	1
Agronomy 315, 421, 422, 423.....	13
Animal Science 410 or 440 or Agriculture Elective.....	3-4
Economics 402, 430.....	6
Finance 318.....	3
Life Sciences 420.....	3
Elective.....	3
	<hr/> 32-33

TOTAL SEMESTER HOURS 137

DEPARTMENT OF AGRONOMY-HORTICULTURE

The Department of Agronomy-Horticulture offers four years of university training in crops, soils, fruits, flowers, vegetables, and landscape and floral design.

Agronomy

The courses offered in the field of agronomy are divided between crops and soils, and provide the student with a knowledge of production and utilization of crops and a knowledge of the fundamentals of soils and their uses.

The Agronomy Club, which is a student section of the American Society of Agronomy, sponsors soil and crop judging teams which promote closer professional relationships among students and faculty.

Horticulture

The Horticulture Curriculum offers students both scientific and practical training in the production, utilization, and marketing of fruits, vegetables, flowers and ornamental plants; and emphasizes floral and landscape design.

AGRONOMY CURRICULUM

Freshman Year	Semester Hours
Agronomy 101	3
Bacteriology 210	3
Botany 101, 104	4
Chemistry 130, 131, 132	10
English 101, 102	6
Life Sciences 101	1
Mathematics 111, 112	6
Speech 110 or 377	3
	36
Sophomore Year	
Accounting 203, 204	4
Agriculture Engineering 215	3
Agronomy 200, 202, 211	7
Botany 223, 405	6
Economics 215	3
Physics 209	3
Zoology 105, 112	4
Elective	3
	33
Junior Year	
Agricultural Engineering 309	3
Agronomy 307, 308, 312, 315, 330	16
Bacteriology 315	3
Botany 330	3
Economics 320	3
English 303	3
Life Sciences 300	3
	34
Senior Year	
Agricultural Engineering 420	3
Agriculture 411	1
Agronomy 405, 409, 410, 415, 421, 422, 423	22
Economics 430	3
Life Sciences 420	3
Zoology 414	3
	35
TOTAL SEMESTER HOURS	138

Students in Agronomy may choose an emphasis either in Crops or Soils. Crops students will follow the curriculum as

outlined while soils students will follow the curriculum outline with the following exceptions:

DROP: Accounting 203, 204; Zoology, 105, 112, and 414;

ADD: Geology 111, 112, 121; Economics 402.

Total Semester Hours 138

Integrated Pest Management students will follow the Agronomy Curriculum with the following exceptions:

DROP: Accounting 203, 204; Economics 215, 320, 430; Elective-1.

ADD: Botany 350; Life Sciences 456 and Agriculture 441, 442 and 443, Internship.

Total Semester Hours 140

HORTICULTURE CURRICULUM

Freshman Year	Semester Hours
Agricultural Engineering 110	1
Botany 101, 104	4
English 101, 102	6
Horticulture 100, 101, 103	9
Life Sciences 101	1
Mathematics 110, 114	6
Speech 110 or 377	3
Elective	3
	33
Sophomore Year	
Agricultural Engineering 215	3
Agronomy 200, 202	4
Bacteriology 210	3
Botany 223	3
Chemistry 130, 131, 132	10
Economics 215	3
History 201 or 202	3
Horticulture 210, 282	5
Electives	1
	35
Junior Year	
Agricultural Engineering 309	3
Agronomy 312, 315	7
Botany 330	3
English 303 or 336	3
Horticulture 300, 306, 307, 308, 315	15
Life Sciences 300	3
	34
Senior Year	
Agriculture 411	1
Agronomy 409, 421, 422, 423	12
Botany 405	3
Horticulture 400, 401, 405, 440, 441	14
Life Sciences 420	3
Zoology 414	3
	36
TOTAL SEMESTER HOURS	138

On the advice and with the approval of the Department Head, a student in Horticulture may choose an emphasis in Floral or Landscape Design. A student concentrating in Floral Design will follow the basic Horticulture curriculum with the following exceptions:

DROP: Agricultural Engineering 110; Agronomy 422, 423; Bacteriology 210; Botany 405; Chemistry 130, 131, 132; Life Sciences 300; Mathematics 110

ADD: Accounting 203; Art 115, 116, 215, 240; Business Law 355; Management 201; Marketing 235; Electives.

A student concentrating in Landscape Design will follow the basic Horticulture curriculum with the following exceptions:

DROP: Agricultural Engineering 110; Agronomy 409, 422, 423; Bacteriology 210; Botany 405; Chemistry 130, 131, 132; Life Sciences 300; Mathematics 110, Elective

ADD: Accounting 203; Architecture 110, 111, 120, 121, 122, 130, 131, 210, 331; Business Law 355; Management 201; Marketing 307, 235.

DEPARTMENT OF ANIMAL INDUSTRY

The Department of Animal Industry is comprised of the fields of animal, dairy, poultry, equine and veterinary science.

The main objective of the Department is to give instruction and practical experience in judging, breeding, feeding, and management of different kinds of livestock and related industries. Through course selection the student may prepare for general livestock farming, management, business or science or elect the pre-veterinary courses for specialization. Directed elective selection permits special training for work with feed companies, milk, egg or poultry operations, food processing industries, managerial or marketing groups, supply and equipment cooperatives, agriculture extension service, agriculture communication, public relations and other organizations associated with agriculture. Graduates are adequately prepared to enter graduate work in their chosen field of specialization.

Opportunities are afforded majors in animal science to obtain practical experience in livestock, dairy herd and equine operation and management through the University herds of registered beef cattle, registered dairy cattle, and equine unit. In addition the department strongly encourages participation in the agriculture internship program.

A modern, automated milking barn; calf barn; beef cattle barns; feed lots; crop lands and pastures are utilized for instruction and student training.

A modern meats laboratory for the study of meat and its cutting, curing, preservation, storage and utilization; and the Dairy Processing Plant equipped for processing fluid milk and manufacturing various dairy products such as butter, cheese and ice cream provide students ample opportunities for acquiring scientific and practical and experience education in different aspects of processing meat animal and dairy products.

The Tech Horse Center offers an opportunity for students to become experienced in stallion management, brood mare care and breeding, foal raising and yearling training and marketing. Paddocks, stalls, round pens, riding arenas, and a 1/2 mile training track are used to train students to be equine trainers and managers.

The Department of Animal Industry has a chapter of the National Black and Bridle Club and a Pre-Veterinary organization which provide extracurricular social and education activities for students pursuing animal science as a profession.

ANIMAL SCIENCE CURRICULUM

Freshman Year	Semester Hours
Agronomy 101 or Approved elective	4
Animal Science 111, 112	6
Botany 101, 104	4
English 101, 102	6
Life Sciences 101	1
Mathematics 110, 114 or 111, 112	6
Zoology 105 or 111, 112	4
Electives	2
	33

Sophomore Year	
Accounting 203	2
Agronomy 211	3
Animal Science 202	3
Business Elective	3
Bacteriology 210 or Dairying 301	3
Chemistry 130, 131, 132	10
Speech 110 or 377	3
Humanities or Social Science Elective	6
	33

Junior Year	
Agricultural Engineering Elective	2
Agronomy 200, 202	4
Animal Science 301, 307, 315, 318	12
Animal Science Directed Electives	9
English 303 or 336	3
Life Sciences 300	3
Veterinary Science 301	3
	36

Senior Year	
Agriculture 411	1
Agriculture Marketing Elective	3
Animal Science 401, 402, 405	7
Animal Science Directed Electives	12
Life Sciences 420	3
Veterinary Science 401	3
Electives	4
	33

TOTAL SEMESTER HOURS 135

Directed and free electives, chosen with career objectives in mind and the counsel and approval of the advisor, allow students to select an area for specialization. Those interested in production would select additional courses in agriculture; those interested in business would select courses in economics, finance and marketing; those interested in dairy manufacturing would select courses in bacteriology and dairying; those interested in research would select chemistry, zoology, or statistics; those interested in equine would select additional animal science courses specializing in horses and/or race-track management.

PRE-VETERINARY MEDICINE

Students having a high GPA and having completed the pre-veterinary course requirements may wish to apply to Veterinary School after completing their Junior year. These students may become candidates for the Bachelor of Science degree in Animal Science after completing the first year of professional work at a Veterinary School. The student must arrange for the transfer of credit and follow the accepted procedure applicable for graduation at Louisiana Tech.

This course listing is provided to guide the student in meeting the admission requirements of the Veterinary School at Louisiana State University in Baton Rouge. Only residents of Louisiana and Arkansas are eligible to apply for admission at L.S.U. Residence status is determined by L.S.U. and residence status at Tech has no bearing on such determination. In addition, completion of the specific subject matter requirements listed and attainment of a given grade point average (2.5) in these courses are minimum requirements for entrance. The specific course listing will generally qualify residents of other states for application to Schools of Veterinary Medicine which accept residents of that particular state.

Each year the number of applicants is much greater than the number of available spaces. As a result, meeting or surpassing the minimum requirement does not assure acceptance by the

Professional program and each student should, early in college, elect a possible alternate career choice.

Application for veterinary school is made in January for admission in August of that year. Although it is possible to complete the pre-veterinary requirements in two years, it is strongly recommended that each pre-veterinary student pursue at least a three-year program.

SUBJECT MATTER REQUIREMENTS FOR ADMISSION TO VETERINARY SCHOOL

	Semester Hours
Animal Science 111.....	3
Chemistry 101, 102, 103, 104.....	8
Chemistry 250, 251, 252, 253, 254.....	8
English 101, 102.....	6
Mathematics 111, 112.....	6
Physics 209, 210.....	6
Zoology 111, 112, 115, 116.....	8
Directed Major Courses.....	23
TOTAL SEMESTER HOURS	67

LSU requires that the directed major courses be selected from a degree granting program. Students are strongly encouraged to seek advice and counsel from a pre-veterinary advisor prior to beginning an academic program.

DEPARTMENT OF BOTANY AND BACTERIOLOGY

The Department of Botany and Bacteriology offers work leading to the Bachelor of Science degree in Botany, in Microbiology, and in Wildlife Conservation. Also, the Department offers graduate courses leading to the Master of Science degree in Life Sciences in the areas of Botany and Microbiology.

In order to broaden the education programs in the Department, the curricula provide for a substantial amount of required and elective courses outside the major fields of study.

Courses are offered in the Department, not only for majors in botany, in microbiology, and in wildlife conservation and management and minors in botany and in bacteriology, but in fulfillment of the requirements of the curricula in other departments. As botany is the basic science for students entering the applied botanical fields of agronomy, bacteriology, forestry, horticulture, plant breeding, plant pathology, forest pathology, and wildlife conservation, the Department emphasizes the phases of plant science which are fundamental for these applied fields. The Department, recognizing the need for natural science in the elementary and secondary schools, has worked with the College of Education to provide work for prospective teachers that will enhance the presentation of basic science concepts in the lower educational programs.

Botany

Each student who plans to have a major in botany is required to take 35 semester hours of botany, at least 16 hours of which must be in advanced courses, i.e., courses bearing numbers above 300. Before the end of the sophomore year, with the approval of the head of the Department, a minor program of study may be chosen.

For the minor program of study, the student majoring in botany must take 21 semester hours of course work in some related field, such as agronomy, bacteriology, chemistry, forestry, horticulture, or zoology.

Students doing work toward a major in other departments and electing botany or bacteriology as a minor are required to take 21 semester hours in botany or bacteriology, the courses

to be chosen in consultation with the head of the Department of Botany and Bacteriology.

The opportunities for graduates in botany are too varied to permit a complete enumeration. In general, graduates are qualified for the following types of work: further study in graduate school; teaching and research in colleges; and positions in experiment stations, in federal agencies—notably the United States Bureau of Plant Industry, the National Park Service, the United States Forest Service, and the United States Bureau of Plant Quarantine—and in commercial greenhouses, nurseries, and florist shops.

Microbiology (Bacteriology)

The program in microbiology is designed for students who are interested in the study of microorganisms. It is arranged both for those students who plan to secure employment after receiving the Bachelor of Science degree and for those who plan to pursue graduate work in microbiology, which is essential for preferred employment in the field.

The curriculum offers, in addition to the general training in microbiology, fundamental training in chemistry, physics, and mathematics, which is necessary for effective work in modern microbiology.

Graduates of this curriculum are eligible to enter graduate schools for advanced training in microbiology and to specialize in one or more of its various branches such as: General Bacteriology, including physiology, instrumentation, and antibiotics; Sanitary Bacteriology, including antiseptics and disinfectants, food storage, and water and sewage; Agricultural Bacteriology, including food, dairy, and soil bacteriology; and Pathogenic Bacteriology, including mycology, immunology, serology, and virology.

Graduates are qualified for positions in federal, state, and municipal laboratories; positions in the fields of medical and public health microbiology; bacteriology work in sanitary, food, dairy, soil, and industrial technology; food preservation work; and positions in experimental stations; research institutions, colleges, or universities.

Wildlife Conservation

The Wildlife Conservation curriculum is designed both for those students who desire a scientific knowledge of the conservation and management of wildlife and for those who expect to make a living in the wildlife field. It is planned further to provide a knowledge of the importance to man of natural resources and to add to the understanding of some of the relationships of those resources to one another. It is designed to train conservation workers as managers, naturalists, and researchers.

BOTANY CURRICULUM

	Semester Hours
Freshman Year	
Bacteriology 212, 213.....	4
Botany 101, 104.....	4
English 101, 102, 202.....	9
Mathematics 111, 112.....	6
Life Sciences 101.....	1
Social Science Elective.....	3
Zoology 111, 112.....	4
	31

Sophomore Year	
Botany 205, 221, 222, 223.....	12
Chemistry 130, 131, 132.....	10
English 303.....	3
Physics 205, 206.....	6

Social Science Elective.....	3
—	34
Junior Year	
Botany 330, 350, 351.....	11
Chemistry 250, 251, 252, 253, 254	8
Foreign Language	6
Electives.....	8
—	33
Senior Year	
Bacteriology Elective.....	3
Botany 320, 405, 415, 416.....	8
Life Sciences 300, 420	6
Electives.....	15
—	32
TOTAL SEMESTER HOURS	130

MICROBIOLOGY (BACTERIOLOGY) CURRICULUM

Freshman Year	Semester Hours
Bacteriology 212, 213.....	4
Botany 101, 104.....	4
Chemistry 101, 102, 103, 104	8
English 101, 102.....	6
Mathematics 111, 112.....	6
Life Sciences 101.....	1
Zoology 111, 112.....	4
—	33
Sophomore Year	
Bacteriology Elective.....	4
Bacteriology 306.....	3
Botany 350	4
Chemistry 250, 251, 252, 253, 254	8
Physics 209, 210, 261, 262	8
Social Science Elective.....	3
Elective	3
—	33
Junior Year	
Bacteriology 330.....	4
Bacteriology Electives	7
Chemistry Elective.....	4
English 202, 303.....	6
Life Sciences 300	3
Social Science Elective.....	3
Electives.....	6
—	33
Senior Year	
Bacteriology 406, 415, 416	6
Bacteriology Elective	4
Foreign Language	6
Life Sciences 420	3
Zoology 401.....	3
Electives.....	9
—	31
TOTAL SEMESTER HOURS	130

WILDLIFE CONSERVATION CURRICULUM

Freshman Year	Semester Hours
Botany 101, 104, 212.....	7
English 101, 102.....	6

Journalism 101.....	3
Life Sciences 101	1
Mathematics 110, 114.....	6
Social Science Elective.....	3
Speech 110.....	3
Zoology 111, 112	4
—	33
Sophomore Year	
Agricultural Engineering 215.....	3
Agronomy 200, 202	4
Bacteriology 210	3
Botany 221, 222, 223.....	9
Chemistry 130, 131, 132	10
Social Science Elective.....	3
—	31

Junior Year	
Botany 320, 345.....	6
Forestry 213, 314	6
Life Sciences 300	3
Social Science Elective.....	3
Veterinary Science 301.....	3
Zoology 313, 317, 433	9
Electives.....	3
—	33

Senior Year	
Agronomy 330	3
Bacteriology 401	3
Botany 415, 416.....	2
Life Sciences 420	3
Veterinary Science 401.....	3
Zoology 429, 432, 434	9
Electives.....	10
—	33

TOTAL SEMESTER HOURS 130

Students majoring in this curriculum may select an emphasis in Wildlife Biology. They will follow the curriculum outline with the following exceptions:

DROP: Agricultural Engr. 215; Agronomy 330; Botany 416; Veterinary Science 301.

ADD: Botany 405; Zoology 115, 116, 202.

SCHOOL OF FORESTRY

Purpose and Objectives:

The primary mission of the School of Forestry is the maintenance of a professional program of excellence in order to meet the future forestry needs of our state, region and nation. The School of Forestry maintains well developed programs in education, research and continuing education. The primary purpose of these programs is:

- to provide educational opportunities for the development of basic skills and individual attributes necessary for employment and advancement within the forestry profession;
- to conduct research activities which add to the basic knowledge of the faculty and students, which involves, where possible, the participation of the students with the faculty in the research effort, and which serves the need and interest of our clientele;
- to maintain and promote continuing education activities that disseminate new technology to the small private landowner, the forest industry, forest resource oriented organizations and other interested public groups, organizations or individuals.

Curricula:

The School of Forestry offers a Bachelor of Science degree program in Forestry as well as a Bachelor of Science degree program in Wood Utilization. The Forestry curriculum with options in general forestry, business, recreation and wildlife, is accredited by the Society of American Foresters (SAF). SAF is a scientific and educational association representing some 21,000 forestry professionals in the United States. The Society is recognized by the Council on Postsecondary Accreditation and the U. S. Department of Education as the accrediting body for forestry.

After satisfactorily completing any one or more of the options, the student receives the Bachelor of Science degree and then is eligible to pursue graduate work or to seek professional employment.

Employment opportunities are varied. Graduates are employed by both private industries and governmental agencies. Private industries include pulp and paper companies, wood preservation companies, the lumber industry, other industrial owners, forestry consulting firms, and private land owners who need professional services in forestry, land use, or conservation. Governmental agencies include federal agencies such as the Soil Conservation Service, National Park Service, United States Forest Service, and similar agencies of the state with work not only in technical forestry but also in the professional aspects of land use management, conservation, and wood utilization.

Junior Year Summer Programs

Two summer programs are offered. Successful completion of one of these at the end of the junior year is a prerequisite for senior standing. Those students who have completed all curriculum requirements through the junior year and have not less than an overall 'C' average are eligible to participate in these summer programs. General forestry students attend a summer camp where residence is required. The summer session for the Wood Utilization students is conducted from the campus.

Summer Camp

The Louisiana Tech Forestry Camp has dormitory, dining, and classroom facilities equipped, owned and operated by the University. It is located about 30 miles north of Ruston near Corney Lake. Eighteen thousand acres of diverse forest types are made available for use by a longterm agreement with the U. S. Forest Service. The camp program is arranged to give students field experience in the forest in addition to classroom instruction.

A Land Use Seminar and Tour is conducted in conjunction with the summer camp. This includes a five to seven days trip which allows students to view and discuss the major uses of land.

Satisfactory completion of this summer camp includes the teamwork and sharing of responsibility necessary for successful group activity.

Wood Utilization Summer Session

The session includes considerable plant, forest, and laboratory work as well as classroom instruction. Applied problems in plywood manufacturing, drying, and other wood processing and testing techniques are studied. Visits are made to forests and to a diversity of wood-using plants where analysis and comparisons of operations in logging and processing are made.

Senior Field Trips

During the senior year all day Friday of each week is reserved for required laboratory trips to forest areas or wood-using plants. This enables the senior students to observe and to take part in numerous forestry, research, and wood-using activities being carried on by private companies and governmental agencies. Practically all of the important forest types, patterns

of ownership, and a wide variety of wood-using industries are located within traveling distance of the campus.

Expenses

In addition to the regular expenses of the University, each student is required to purchase for use during the junior and senior years: a drawing set and a hand lens. These must be of a quality approved by the School. All students should have access to a typewriter for the purpose of preparing laboratory and other reports. The School recommends, but does not require, that each student have a camera for use on field trips and a pocket calculator during the summer camp. (Consult your instructor before buying a calculator.)

Field trips cannot always be arranged within the scheduled laboratory hours which, in some cases, means leaving the campus earlier and returning later than the published schedule. Arrangements for lunches, the purchasing of meals, and the payment of lodging in those instances where overnight trips are necessary are the responsibility of the individual student. This includes the special summer program. In addition to regular summer session expenses, a special fee is charged each student who attends the summer camp or the wood utilization summer session. Summer camp students are charged the dormitory cost on the basis of the regular quarter and do not qualify for any reduced residence hall cost applicable during the summer.

Each student registering for any forestry course involving field laboratory work should have, for self protection an accident insurance policy. Policies are available during registration to all students for a reasonable rate per quarter.

A number of student assistants are employed by the School each year. This enables the students to work part time while attending school.

Professional Organization

The School sponsors the Louisiana Tech Student Chapter of the Society of American Foresters and the student Chapter of the Forest Products Research Society for social and professional activity of forestry students and faculty.

FORESTRY CURRICULUM GENERAL FORESTRY OPTION

Freshman Year	Semester Hours
Agricultural Engineering 110.....	1
Botany 101, 104.....	4
Economics 215.....	3
English 101, 102.....	6
Forestry 101.....	2
Life Sciences 101.....	1
Mathematics 111, 112.....	6
Political Science 201.....	3
Zoology 111, 112.....	4
	30
Sophomore Year	
Accounting 203.....	2
Agronomy 200, 202.....	4
Chemistry 101, 102, 103, 104.....	8
Computer Science 102 or equivalent.....	3
English 303.....	3
Forestry 202, 205, 206.....	6
Electives.....	6
	32
Junior Year	
Civil Engineering 304, 433.....	5
Forestry 301, 302, 305, 306, 312, 313, 314.....	20
Physics 209, 261.....	4
Speech 377.....	3

Electives.....	2
	34
Summer Session—Forestry Camp	
Forestry 315, 316, 320, 321, 322	12
Senior Year	
Agricultural Engineering 340, 431	4
Forestry 401, 403, 407, 409, 410, 411, 416, 422	20
Life Sciences 420	3
Electives.....	5
	32
TOTAL SEMESTER HOURS	140

BUSINESS OPTION

Freshman Year	Semester Hours
Agricultural Engineering 110.....	1
Botany 101, 104	4
Computer Science 102.....	3
English 101, 102.....	6
Forestry 101, 202.....	4
Life Sciences 101	1
Math 111, 112.....	6
Political Science 201	3
Zoology 111	3
	31

Sophomore Year	
Accounting 203, 204, 210	7
Agronomy 200, 202	4
Civil Engineering 304	2
Chemistry 101, 102, 103, 104	8
Economics 215.....	3
Forestry 205, 206	4
Math 220.....	3
Electives.....	2
	33

Junior Year	
English 303.....	3
Finance 442, 443.....	6
Forestry 301, 302, 305, 306, 312, 313	17
Physics 209, 261.....	4
Quantitative Analysis 233.....	3
	33

Summer Session—Forestry Camp	
Forestry 315, 316, 320, 321, 322	12
Senior Year	
Business Law 355	3
Forestry 401, 403, 407, 409, 410, 411, 416, 422.....	20
Speech 377	3
Electives.....	5
	31

TOTAL SEMESTER HOURS	140
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RECREATION OPTION

Freshman Year	Semester Hours
Accounting 203.....	2
Agricultural Engineering 110.....	1
Botany 101, 104.....	4
English 101, 102.....	6
Forestry 101	2
Life Sciences 101.....	1
Mathematics 111, 112.....	6
Psychology 102.....	3
Physics 209, 261.....	4

Zoology 111	3
	32
Sophomore Year	
Agronomy 200, 202	4
Chemistry 101, 102, 103, 104	8
Computer Science 102.....	3
Economics 215.....	3
English 303.....	3
Forestry 202, 205, 206	6
Political Science 201	3
Sociology 201	3
	33

Junior Year	
Agronomy 312	3
Civil Engineering 304	2
Forestry 301, 302, 305, 306, 312, 313	17
Health & Physical Education 225	3
Speech 377	3
Electives.....	3
	31

Summer Session—Forestry Camp	
Forestry 315, 316, 320, 321, 322	12
Senior Year	
Forestry 401, 407, 409, 410, 314, 411, 422.....	18
Journalism 450.....	3
Life Sciences 420	3
Management 470	3
Electives.....	5
	32

TOTAL SEMESTER HOURS	140
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WILDLIFE OPTION

Freshman Year	Semester Hours
Agricultural Engineering 110.....	1
Accounting 203.....	2
Botany 101, 104.....	4
Economics 215.....	3
English 101, 102.....	6
Forestry 101.....	2
Life Sciences 101	1
Mathematics 111, 112.....	6
Political Science 201	3
Zoology 111	3
	31

Sophomore Year	
Agronomy 200, 202	4
Chemistry 101, 102, 103, 104	8
English 303.....	3
Forestry 202, 205, 206	6
Physics 209, 261	4
Veterinary Science 301.....	3
Electives.....	3
	31

Junior Year	
Botany 223	3
Civil Engineering 304	2
Computer Science 102.....	3
Forestry 302, 306, 312, 314	11
Speech 377	3
Zoology 313, 317	6
Electives.....	3
	31

Summer Session—Forestry Camp	
Forestry 315, 316, 320, 321, 322	12
Senior Year	
Forestry 401, 407, 409, 410, 411, 416, 422	18
Life Sciences 420	3
Management 470	3
Zoology 432, 433	6
Electives	5

35

TOTAL SEMESTER HOURS 140

WOOD UTILIZATION PROGRAM

Freshman Year	Semester Hours
Agricultural Engineering 110	1
Botany 101, 104	4
Computer Science 102	3
Economics 215	3
English 101, 102	6
Forestry 101	2
Health & Physical Education 150	2
Life Sciences 101	1
Mathematics 111, 112	6
Political Science 201	3
Electives	3

34

Sophomore Year	
Accounting 203, 204	4
Chemistry 101, 102, 103, 104	8
Engineering Mechanics 206	3
Forestry 205, 206	4
History 201	3
Mathematics 220	3
Physics 209, 261	4
Quantitative Analysis 220	3

32

Junior Year	
Accounting 210	3
Agricultural Engineering 211	2
English 303	3
Engineering Mechanics 207	3
Forestry 305, 306, 408	9
Industrial Engineering 409	3
Management 311	3
Marketing 300	3
Quantitative Analysis 233	3
Speech 377	3

35

Summer Session	
Forestry 340, 341	6
Electives	4

10

Senior Year	
Chemistry 131	3
Forestry 407, 414, 416	7
Finance 318	3
Industrial Engineering 425	3
Marketing 485	3
Electives	10

29

TOTAL SEMESTER HOURS 140

DIVISION OF NURSING

The Nursing Curriculum, a two year program leading to the Associate of Science degree, is presented in the Division of Admissions, Basic and Career Studies section of this bulletin.

PRE-NURSING CURRICULUM

(Northwestern State University - Louisiana Tech University Interinstitutional Program for the Bachelor of Science Degree)

Freshman Year	Semester Hours
Life Sciences 101	1
Chemistry 130, 131, 132	10
English 101, 102, 201 or 202	9
Mathematics 111, 112 or 110, 125	6
Speech 110	3

29

Sophomore Year	
Bacteriology 212, 213	4
History	3
Home Economics 203	3
Health & Physical Educ. Activity or HPE 150	1
Psychology 102, 408	6
Zoology 225, 226, 227, 228	8

25

After completing above curriculum the student may transfer to the Shreveport campus to complete the requirements for the baccalaureate degree.

Required electives may be taken at NSU.

DEPARTMENT OF ZOOLOGY

Students desiring to complete a degree program in the Department of Zoology will consult with the head of the department.

During the sixth quarter of residence (and later as may be necessary) students will present to their advisors, for discussion and approval, the program of study they intend to pursue during their junior and senior years.

Degree Programs

The degree programs offered through the Department of Zoology are:

(1) Bachelor of Science degree in Zoology. Both students who have a primary interest in zoology and students who plan on applying to medical or dental school will follow the Zoology Curriculum.

(2) Master of Science degree in Life Sciences with a specialty in Zoology.

Requirements For A Major

All students majoring in zoology will satisfactorily complete the courses specified in the Zoology Curriculum. The elective subjects will be selected with the advice and approval of the advisor.

The Department of Zoology reserves the right to accept toward graduation only credits with a C or higher grade in Zoology courses.

Requirements For A Minor

A student wishing to minor in Zoology may do so by declaring this intention with the Zoology Department Head and by completing the core courses in the Zoology Curriculum, a total of 22 semester hours.

ZOOLOGY CURRICULUM

For Zoology majors and for pre-medical and pre-dental students following the Zoology Curriculum.

Freshman Year	Semester Hours
Botany 101, 104.....	4
Chemistry 101, 102, 103, 104	8
English 101, 102.....	6
Life Sciences 101	1
Mathematics 111, 112 or 230, 231.....	6
Zoology 111, 112, 115, 116*	8
	<hr/>
	33
Sophomore Year	
Chemistry 250, 251, 252, 253, 254	8
English 201, 202.....	6
Zoology 310*	3
Bacteriology 212, 213	4
Social Sciences (Include General Psychology) **	6
Zoology 202, 313*	7
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	34
Junior Year	
Chemistry 205, 351, 352, 353, 354	12
Foreign Language (six hours in the same language)	6
Zoology Electives	3
Zoology 320, 321*	4
Physics 209, 210, 261, 262	8
Zoology 480 (one of two quarters required)	1
	<hr/>
	34
Senior Year	
Life Sciences 420	3
Continuation of same Foreign Language, Advanced Science, Mathematics or Computer Science	6
Social Sciences**	3
Zoology 480 (one of two quarters required)	1
Zoology Electives	11
Free Electives	4
	<hr/>
	28

TOTAL SEMESTER HOURS 129

*Core courses should be completed by end of Junior year.

**To be selected from courses in Economics, Geography, History, Political Science, Psychology or Sociology with the advice and approval of your advisor.

Pre-medical and Pre-dental students are strongly advised to complete their degree programs before entering medical or dental school. Students with an exceptionally high grade point average may apply early in their junior year for admission to medical or dental school upon completion of that year. This practice is not recommended by the Pre-medical/Pre-dental Advisory Committee. If a student successfully completes the junior year of the Zoology curriculum including the core courses, the first year of medical or dental school, and all other requirements for graduation of Louisiana Tech University and the Zoology Department, the student may become a candidate for the Bachelor of Science degree.

The Graduate School

ADMINISTRATION

JOHN E. MAXFIELD, Dean

The Dean of the Graduate School administers and coordinates the graduate programs of the University. Graduate instruction is supervised by the appropriate academic deans, directors of graduate studies, department heads, and graduate faculty under policies set forth by the Board of Trustees for State Colleges and Universities and the Graduate Council chaired by the Dean of the Graduate School. The President of the University is the final local authority in the operation of the graduate program.

STUDENT RESPONSIBILITY

Each graduate student must assume the responsibility for becoming knowledgeable concerning Graduate School regulations and requirements.

GRADUATE PROGRAMS

Graduate degrees granted by the University are:

- Master of Arts
- Master of Business Administration
- Master of Fine Arts
- Master of Professional Accountancy
- Master of Science
- Specialist
- Doctor of Business Administration
- Doctor of Engineering
- Doctor of Philosophy

The graduate degrees and curricula, by colleges, are as follows:

COLLEGE OF ADMINISTRATION AND BUSINESS

Master of Business Administration (Specialties available as follows:)

- General (no specialty)
- Accounting
- Business Education
- Economics
- Finance
- Management
- Marketing
- Quantitative Analysis

- Master of Professional Accountancy
- Doctor of Business Administration

COLLEGE OF ARTS AND SCIENCES

Master of Arts (Curricula available as follows:)

- English
- History
- Romance Languages
- Speech
- Speech Pathology & Audiology

- Master of Fine Arts

Master of Science (Curricula available as follows:)

- Chemistry
- Mathematics
- Physics

COLLEGE OF EDUCATION

Master of Arts (Curricula as follows:)

- Art Education
- Counseling and Guidance
- Elementary Education

- English Education
- Human Relations and Supervision
- Music Education
- Reading
- Social Studies Education
- Special Education
- Speech Education
- Speech Pathology & Audiology Education
- Master of Science (Curricula as follows:)
- Business Education
- Health and Physical Education
- Mathematics Education
- Science Education (Biology, Chemistry, or Physics)
- Specialist

COLLEGE OF ENGINEERING

Master of Science

A student selects an area of emphasis in concert with the advisory committee. The major engineering disciplines are available, as follows:

- Agricultural Engineering
- Biomedical Engineering
- Chemical Engineering
- Computer Science
- Civil Engineering
- Electrical Engineering
- Geology
- Industrial Engineering (including Operations Research option)

- Mechanical Engineering
- Petroleum Engineering
- Doctor of Engineering
- Energy
- Environment
- Electronics and Computers
- Human Accommodation Design
- Doctor of Philosophy
- Biomedical Engineering

COLLEGE OF HOME ECONOMICS

Master of Science (Options available as follows:)

- General Home Economics
- Home Economics Education
- Institution Management

COLLEGE OF LIFE SCIENCES

Master of Science in Life Sciences (Options in the following fields:)

- Botany
- Zoology

ADMISSION

A student will not receive graduate credit for any course taken unless he or she has complied with the following admission procedures and has been accepted for admission to the Graduate School.

For admission to Graduate School, the applicant must satisfy all general admission requirements for Louisiana Tech University. Application forms for admission may be obtained from the Admissions Office or the Graduate School. ALL NECESSARY OFFICIAL TRANSCRIPTS, STANDARDIZED TEST SCORES, AND ADMISSION APPLICATION FORMS must be received in the Admissions Office at least 2 weeks in advance of registration for the session in which the student expects to

enroll. Policies governing the submission of transcripts for all graduate students are as follows:

(1) Students in pursuit of a master's degree must submit ALL official undergraduate transcripts (regardless of the number of colleges attended in order to earn the baccalaureate degree) so that a full evaluation of the grade point average may be made. In addition, all transcripts of any graduate work attempted at other colleges and universities are required. Students applying for unclassified status must meet the same transcript requirements listed in this section.

(2) Those students in pursuit of a doctoral degree or a specialist degree must submit all official transcripts (undergraduate and graduate) for evaluation of eligibility for these programs.

(3) Those students in pursuit of the "Master's Plus 30" program must submit only the official transcript certifying receipt of the master's degree from a regionally accredited institution.

(4) Those students applying for transient status must submit only an official copy of a transcript certifying that they are actively pursuing an advanced degree at another institution.

(5) If permission to enter the Graduate School is given prior to graduation, this admission is automatically withdrawn if the Bachelor's degree is not awarded before the date of registration.

NON-DEGREE STUDENT'S ADMISSION

1. Unclassified: Students seeking graduate credit but not seeking a higher degree must meet the same academic requirements for admission to Graduate School as students admitted to work toward a master's degree.

2. Transient: Students admitted to a graduate program at another institution wishing to take a course(s) for transfer credit may be allowed to take such a course(s) with the approval of the Director of Graduate Studies in the college in which he or she would normally enroll. A maximum of 12 hours of transient credit will be allowed. Transcripts shall note that such credit is for transfer only.

3. Master's Plus 30: Students who have earned a master's degree from a regionally accredited institution are admissible to the Graduate School on this basis. However, this action does not admit the student to any specific program of study within the Graduate School automatically.

MASTER'S PROGRAM ADMISSION

Certain minimum admission standards are established by the Graduate Council for the University. Each academic college has the prerogative to be more selective and establish higher standards for its respective graduate students.

APPLICANTS FOR READMISSION to Tech must complete an application for admission when the student has not been enrolled for one or more quarters (except for the summer term.)

UNCONDITIONAL ADMISSION

Unconditional Admission requires that the applicant must have earned a bachelor's degree from a regionally accredited college or university and must have achieved a minimum grade point average of 2.50 (4.0 system) on all work attempted or 2.75 on the last 60 hours attempted. The final decision rests with the Dean of Graduate Studies and is based upon the recommendation of the Admissions Committee of the academic college the student wishes to enter.

CONDITIONAL ADMISSION

Conditional Admission may be gained by those applicants not qualified for unconditional admission, while satisfying or validating their undergraduate deficiencies, provided that they have a grade point average of 2.25 on all work attempted or a 2.50 average on the last 60 hours attempted and present a

satisfactory standardized test score prior to admission. The final decision rests with the Dean of the Graduate School and is based upon the recommendation of the Admissions Committee of the academic college the student wishes to enter.

Conditional Status may be changed to Unconditional Status when a student earns a minimum of 9 hours of graduate credit at Louisiana Tech, provided he or she has a 'B' average on all work pursued for graduate credit, including no grade lower than 'C' and not more than on course with a grade of 'C'. When a student completes 9 hours of graduate credit and is not eligible for unconditional status, the student will be dropped from graduate status.

Each graduate student seeking admission to a degree program will be required to take the standardized test(s) specified by the academic college. Applications for the appropriate test may be obtained from the Counseling Center, Keeny Hall 322. Those students qualifying for unconditional admission who have not submitted a standardized test score may be granted provisional admission and allowed to submit the test score during their first quarter of enrollment as a graduate student, unless otherwise specified by the appropriate college. Students who fail to submit a test score by the specified deadline will be dropped from graduate status until a satisfactory test score has been received; those students provisionally admitted who do not submit a satisfactory test score will be subject to reexamination by the Admissions Committee of the appropriate academic college. Students seeking conditional admission will be required to submit the specified test scores before an admission decision is made.

SPECIALIST'S PROGRAM ADMISSION

Those students interested in admission to the Specialist Degree program are referred to the College of Education section of this catalog.

DOCTORAL PROGRAM ADMISSION

Applicants for admission to the programs of study leading to the doctoral degree will be granted either an unconditional admission or will be rejected. Admission shall anticipate a minimum preparation to proceed at the doctoral level of study and shall consist of a bachelor's degree from a recognized institution and a transcript demonstrating sufficient undergraduate preparation for advanced study in both major and minor fields. Usually, although not necessarily, the applicant will possess a master's degree. In addition to formal courses and credits demonstrating adequate preparation, an acceptable report on the Graduate Record Examination or a designated comparable standard instrument, such as the Graduate Management Admission Test is required. Applications and other information may be obtained from the Counseling Center, Keeny Hall, Room 322.

A minimum of three references is required. A locally administered screening or qualifying examination, or an interview of the applicant may be required at the direction of the admitting college. It is emphasized that no quantitative standards are set and that admission is a judgment of the admissions committee of the appropriate college. This committee makes its recommendation to the Graduate School Office.

The Dean of Admissions will receive and expedite the handling of all admission documents. Complete transcripts of the applicant's undergraduate and graduate record, and of all academic work taken at other institutions, must be submitted to the Admissions Office in order to have a doctoral application considered. The applicant should consult the doctoral admission requirements for the appropriate college in order to determine that area's specific requirements as to test scores and other items. Each academic college has the prerogative to be more selective and establish higher standards for its respective graduate students.

GRADUATING SENIORS AS PART-TIME GRADUATE STUDENTS

A graduating senior at Louisiana Tech University who has a 3.0 or better average on all work attempted may be permitted to take a combined load of undergraduate courses and courses for graduate credit not to exceed 12 semester hours per quarter with a limit of 4 hours for graduate credit (500-level courses are not permitted). A graduating senior who has a 2.5 average or better on all work pursued may be permitted to take a combined load of undergraduate courses and courses for graduate credit not to exceed 8 semester hours per quarter with a limit of 4 hours for graduate credit (500-level courses are not permitted).

TESTING

All colleges require that a student wishing to enter Graduate School take the appropriate test (s):

College of Administration and Business: Graduate Management Admission Test for both master's and doctoral students.

College of Arts and Sciences: Graduate Record Examination (aptitude).

College of Education: Miller Analogies Test or Graduate Record Examination (aptitude) for both master's and specialist's students.

College of Engineering: Graduate Record Examination (general for masters and both general and subject exams for doctoral students.)

College of Home Economics: Miller Analogies Test or Graduate Record Examination (aptitude).

College of Life Sciences: Graduate Record Examination (aptitude) for all master's programs plus the following advanced scores: Biology for botany program; Biology for microbiology program; and Zoology for zoology program.

All foreign students are required to submit a score on the test of English as a Foreign Language before their applications can be evaluated. The test must be taken no earlier than two years prior to application. The minimum acceptable score is 550.

For additional information and to register for these tests, contact the Counseling Center, P. O. Box 5255 TS, Ruston, LA 71272. Telephone (318) 257-2488.

SUMMARY OF ADMISSION PROCEDURES

PROCEDURE	INITIATE THROUGH	TIME
1. Obtain application for Admission forms	Dean of Admissions	At least 4 weeks prior to registration
2. Return completed forms	Dean of Admissions	Must be received at least 2 weeks prior to registration
3. Have all necessary official transcripts and test scores sent to Tech	Dean of Admissions	Must be received at least 2 weeks prior to registration
4. Comply with any additional requirements of individual graduate programs as specified in this Catalog	Director of Graduate Studies in individual college	At discretion of College
5. Follow registration procedure as outlined in the Quarter Bulletin	Registrar's Office	Registration Period

GENERAL REQUIREMENTS FOR ALL ADVANCED DEGREES COURSES

All 500-level courses, and above, are open only to graduate students. Courses numbered 400 are for seniors but may carry graduate credit. Also, in some cases, a 300-level course may be approved for graduate credit. Students taking 300- and 400-level courses for graduate credit are normally required to undertake additional work in order to bring the course requirements up to graduate level.

The semester hour is the unit of credit at Louisiana Tech. Most courses carry a credit of three semester hours and meet three times a week for a quarter. Credit for each course is indicated by the numerical description, as 0-3-3; the first number indicates laboratory contact hours per week; the second, lecture periods per week; and the third, credit in semester hours.

GRADE REQUIREMENT

To receive a graduate degree a student must have an average of at least 3.0 on all work pursued for graduate credit while registered at Louisiana Tech. A student will be dropped from graduate status if either his or her cumulative average and/or his or her average for the quarter is below 3.0 on work

pursued for graduate credit for three consecutive quarters in attendance.

No grade lower than 'C' and no more than two 'C's' will count toward a degree. All courses pursued for graduate credit will be counted in the grade point average.

The above grade rule applies both to students working toward a graduate degree and to those graduate students who are not seeking graduate degrees.

GRADING SYSTEM

The official grades of graduate students are recorded in the Office of the Registrar. The Registrar provides official transcripts on the same basis as for undergraduate students.

The University's system of grading is as follows:

Grade	Quality Points
A	4 quality points per semester hour
B	3 quality points per semester hour
C	2 quality points per semester hour
D	1 quality points per semester hour
F	0 quality points per semester hour
I	(see explanation below)
S	(see explanation below)
W	(see explanation below)

An 'F' is a failure and does not carry credit in the course. The grade 'I' plus the average letter grade on all work completed is used to denote failure to complete assigned class work and/or examinations because of conditions beyond the student's control. If the grade 'I' has not been removed by the end of the fourth week of the following quarter, a grade of 'F' will be recorded, except on research and thesis courses numbered 551 and 580 and on research and dissertation courses numbered 590. The grade 'S' (satisfactory) is used for courses numbered 551, 580, and 590. Also, the only grades used for these courses are 'I' and 'S'.

The 'W' grade is given when a student withdraws from a class or resigns after the final date for registration has passed and before the end of the first six weeks of a quarter. The 'W' grade is not included in computing the student's average. If a student resigns from school after the first six weeks, his or her instructor will submit grades of 'W' plus the student's average letter grade at the time of withdrawal. However, if the student resigns during the last week of classes, he or she will be given an 'F'. These grades ('W' plus average) will be recorded on the graduate student's permanent record but will not be included in the computation of the average. A student who withdraws from a class after the first six weeks of a quarter will receive an 'F' in the course.

REGISTRATION AND CLASSIFICATION

Graduate students will conform to the registration schedule of the University and may not enter later than the last allowable date set by the Registrar. Students requiring a faculty member's time and assistance, laboratory facilities, library services, etc., while engaged in research or preparing for or taking examinations must register for a minimum of three hours of credit if 551, 590, or Education 580.

Before registering, a graduate student must obtain his or her advisor's approval of his proposed program.

FINANCIAL AID

Graduate assistantships for master's degree candidates, and teaching and research assistantships for students pursuing the doctoral program are offered. A student should check with the appropriate college for information concerning these assistantships.

In addition, a limited number of University Graduate Assistantships for masters and specialist students, and University Teaching or Research Assistantships for doctoral students are available to outstanding students. Applications for University Assistantships should be in the Graduate School Office by February 1 preceding the fiscal year for which application for admission is made (fiscal year begins July 1). An applicant must be eligible for admission to the Graduate School; must generally have an undergraduate grade point average of at least 3.50; and submit a standardized test score required in his field. Forms for applying for an assistantship can be obtained from Admissions or the Graduate School Office.

STUDENT LOADS

The maximum graduate credit course load for a graduate student will be 12 semester hours in a regular session. Not more than 9 hours of this total may be 500-level courses which will include, in master's and specialist programs, research and thesis and/or special non-lecture courses, except with the permission of the student's Director of Graduate Studies. Students who hold full-time assistantships in a regular session will be required to reduce the maximum load by 3 hours. In addition, the appropriate department may require further load reductions. For sessions shorter than one quarter, the maximum load will be 1 hour of graduate credit for each week of the session.

The minimum load to qualify as a full-time graduate student is 6 semester hours per quarter.

LANGUAGE EXAMINATIONS

Language reading proficiency examinations are scheduled once each quarter. Candidates must pre-register for the examination they wish. Schedules and regulations concerning foreign language reading proficiency examinations may be obtained from the Head of the Department of Foreign Languages.

GRADUATION

Commencement exercises are held and advanced degrees may be conferred at the close of any quarter, including the summer quarter. A student who is scheduled to receive a degree at the end of a quarter is expected to attend the commencement exercises. If a candidate is absent from commencement without the approval of the President of the University, he or she will be assessed an absentee fee of \$10 and an additional \$3 "special handling" fee will be charged persons who do not pick up their diplomas at graduation when they are normally available. Degree candidates are required to arrive at the place of assembly no later than one half hour before commencement exercises are scheduled to begin.

The applicant for graduation must be registered at Louisiana Tech University. Applications for graduation must be reported to the appropriate Director of Graduate Studies and to the Registrar within the first four weeks of the quarter in which the student expects to graduate. Arrangements for caps, gowns, and hoods should be made in the Student Center Office.

GENERAL REQUIREMENTS FOR ALL MASTERS' DEGREES

Some departments impose degree requirements which are more restrictive than general requirements. The student is advised to check the department or college section of the catalog for the area of study to be pursued.

ADVISORY COMMITTEE

Advisors are assigned each student upon approval for admission to the Graduate School. After consultation with the advisor and/or department head, the academic dean will be requested to appoint an Advisory Committee consisting of three to five members of the graduate faculty. It will be the responsibility of the Advisory Committee to counsel with the student and to develop a Plan of Study which is then filed with the Graduate Office. Any graduate student following a degree program who has not submitted a Plan of Study by the end of the first quarter of graduate study will not be allowed to register as a graduate student until a Plan of Study has been submitted. Any later revision in the Plan of Study should be reported.

MINIMUM CREDIT REQUIREMENT

The minimum credit requirement for the master's degree is 30 semester hours of graduate work, not more than 6 of which may be allowed for research and thesis. In optional programs not requiring a thesis, the standard course requirements should not be less than 30 hours. Students who do not write a thesis must demonstrate acceptable proficiency in research and reporting. A minimum of one-half of the credit for the degree must be in courses open only to graduate students.

RESIDENCE, EXTENSION, AND CORRESPONDENCE CREDITS

No more than 12 credit hours for a master's degree may be earned through extension credits. The programs at Barksdale and Rome, Italy, are not extension operations but are off-

campus units granting residence credits. No correspondence credits are applicable toward a master's degree.

TRANSFER CREDITS

A student is required to earn a minimum of 24 graduate credit hours from Louisiana Tech in order to be eligible to receive a master's degree. The additional hours required for the master's degree may be transferred from another institution provided that the institution is regionally accredited, the grade earned is B or above, and the credits are accepted as applicable to the master's degree program by the student's academic college.

THE THESIS

The requirement of a thesis varies within the University; therefore, the prospective student should check the college and/or departmental sections of the catalog for their stipulations. General requirements, applicable to all graduate students meeting this thesis requirement (regardless of the field of study in which they pursue their work), are enumerated below.

A thesis subject should be selected by the student — in consultation with the student's advisor — and approved by the Advisory Committee. With permission of the Advisory Committee, a student not in residence but who has satisfied all course requirements may complete the thesis "in absentia."

The research and thesis must be certified by registration in and completion of all requirements of the Research and Thesis courses, numbered 551. If the student does not complete the course during the quarter in which he or she is registered for it, an incomplete or "I" grade will be given in the course until such time as all requirements are completed, including the thesis. The limit on clearing this grade is 6 years from initiation of the graduate program or graduation, whichever comes first.

The thesis, in order to be approved, must be written in correct English and in scholarly form. It must show independent thought, both in its recognition of a clearly defined problem and in its method of treatment. It must reveal the sources of information and a knowledge of the bibliography of a special field.

The publication "**Guidelines for the Preparation of Theses and Dissertations**" is available in the Graduate School Office and should be used as a guide in the preparation of the thesis. The thesis must be submitted to the Director of Graduate Studies 10 working days before the expected date of graduation and to Prescott Memorial Library 7 working days before the expected date of graduation. The Director of Graduate Studies in each academic college will notify the Academic Dean and the Graduate School Office that the candidate has completed all requirements other than the final quarter's grades and is eligible to receive the master's degree.

Students requiring a faculty member's time and assistance, laboratory facilities, library services, etc., while engaged in research will be required to register and pay fees.

EXAMINATIONS

Oral and/or written comprehensive examinations will be administered by the Advisory Committee sufficiently in advance of graduation. This is necessary in order that the Dean of the academic college (or a representative) in which the student is a candidate for a graduate degree may notify the Graduate School Office. This notification should be made at least one week before commencement and should state that all requirements have been satisfied, contingent upon satisfactory grades for the final quarter. Otherwise, the candidate will be delayed one quarter in receiving his or her degree. A student who does not successfully pass the comprehensive examination is entitled to one repeat examination.

No oral or written comprehensive is required for the MBA and MPA.

TIME LIMIT FOR DEGREE

A time limit for the completion of all requirements for the master's degree has been set at 6 consecutive calendar years from the time of initial enrollment.

A SECOND MASTER'S DEGREE

A student pursuing a second master's degree must earn a minimum of 15 additional graduate hours at Louisiana Tech and must satisfy the requirements for a minimum number of exclusively graduate courses, in addition to the thesis, to be taken in the area in which the second degree is being earned.

GENERAL REQUIREMENTS FOR SPECIALIST DEGREES

Those students interested in pursuit of the Specialist Degree are referred to requirements as listed under the College of Education section of this catalog.

GENERAL REQUIREMENTS FOR ALL DOCTORAL DEGREES

The doctoral degree is not awarded on the basis of completion of a course of study, however well done. Instead, the degree is earned by intensive individual study, inquiry, and original research by a well-qualified candidate under the close supervision of a major professor and an Advisory Committee. The program must be tailored to the needs and interests of the candidate and to the needs and demands, present and future, of his or her profession. As a result, the modern doctoral candidate must expect to exhibit or develop a high level of competency and habits and skills of individual inquiry and original research which characterize the doctorate. Consequently, it is neither possible nor desirable to set firm and rigid requirements.

The student is advised to check the departmental or college section of the catalog for the area of study to be pursued. In some cases, the college or area requirements may be more restrictive than these general requirements for the doctoral programs.

MINIMUM CREDIT REQUIREMENT

Formal course work is of indisputable value to bring the student into a scholarly relationship with members of the graduate faculty and to demonstrate accepted knowledge of a subject. A minimum of 60 semester hours credit of formal course work beyond the baccalaureate degree, exclusive of credit for research and thesis courses and research and dissertation courses, is required.

ADVISORY COMMITTEE

During the first quarter in which students are enrolled in Graduate School, they should report to the appropriate Director of Graduate Studies to request the appointment of an Advisory Committee. The responsibilities of the Advisory Committee include counseling with the student to develop a Plan of Study. A copy of this degree program should be filed with the Graduate School Office during the student's first quarter of enrollment in a graduate degree program. Any graduate student who has not submitted a Plan of Study by the end of the first quarter of graduate study will not be allowed to register as a graduate student until a Plan of Study has been submitted. All formal course work must be approved by the Advisory Committee as acceptable for graduate credit.

MAJORS AND MINORS

It shall be the responsibility of the student's Advisory Committee to explore with him or her and, subsequently, to define

for the student his or her obligations toward majors and minors. The general content and scope of these majors for the disciplines involved shall have been approved by the Graduate Council and shall be so framed that their integrity is served in the administration of the program.

RESEARCH AND DISSERTATION

The dissertation is required of all candidates for the doctoral degree and must be supported by adequate research and independent study of a problem of reasonable scope under the direction of the student's Advisory Committee. A minimum of 15 semester hours credit is granted for this research and dissertation through the medium of appropriate registrations as guided by the student's Advisory Committee. Grades of 'I' and 'S' are used for these courses. The dissertation must be submitted to the appropriate Director of Graduate Studies 10 days before the expected date of graduation and to Prescott Memorial Library 7 days before the expected date of graduation.

The publication "**Guidelines for the Preparation of Theses and Dissertations**" is available in the Graduate School Office and should be used as a guide in the preparation of theses and dissertations. The University participates in the service for publication of doctoral dissertations provided by University Microfilms. Each abstract is published in "**Dissertation Abstracts**," along with a positive copy which is sent to the Library of Congress. The doctoral candidate is advised to check with Prescott Memorial Library concerning this program.

LANGUAGE REQUIREMENTS

Foreign languages are thought of as instruments of research and continuing access to information about foreign culture and scholarship. A reading knowledge of two foreign languages selected by the student and his Advisory Committee is the general requirement. Substitutions for languages

may be permitted in some fields. In the Doctor of Business Administration (DBA) and the Doctor of Engineering (D. Engr) program there are no language requirements.

EXAMINATIONS AND ADMISSION TO CANDIDACY

After completion of a minimum of two full academic years of graduate work after compliance with the language and/or tool requirements, and or any other requirements of the appropriate academic college, comprehensive examinations (general examinations) are required to determine whether or not the student is ready to be admitted to candidacy for the doctoral degree. The results of these examinations may also determine additional work to be taken and may determine the feasibility of the dissertation project.

An examination defending the dissertation must be completed successfully at least two weeks prior to the date the degree is expected to be received.

RESIDENCE REQUIREMENT

The minimum residence requirement for the doctoral degree shall be eight quarters beyond the bachelor's degree. The student is required to spend at least three quarters beyond the first year of graduate study in continuous residence. The transfer of course work from a recognized graduate school carries with it the transfer of residence credit, but a minimum of 24 semester hours of graduate credit beyond the first year of graduate study must be earned in residence at Louisiana Tech University.

TIME LIMITATION

The doctoral degree must be completed within 5 consecutive calendar years after the successful completion of the student's comprehensive (general) examinations.

GRADUATE PROGRAMS

College of Administration and Business

OFFICERS OF INSTRUCTION

BOB R. OWENS - Dean

PHILIP F. RICE - Director, Graduate Division

JAMES R. MICHAEL - Director, Research Division

HOMER G. PONDER - Director, Undergraduate Division

H. J. SMOLINSKI - Director, School of Professional Accountancy

JAMES L. HESTER - Head, Department of Business

TOM S. SALE, III, Head, Department of Economics and Finance

REBA K. NEEL - Head, Department of Office Administration and Business Communication

All graduate programs are designed to prepare students to engage in professional and/or administrative careers in business and government and to enter the teaching profession. Students may enter the masters and doctoral programs any quarter. Each graduate student has an Advisory Committee to help plan his/her program and tailor it to individual needs and objectives. In the College, no grade less than 'C' will be accepted on courses taken for graduate credit in a student's degree program.

The College of Administration and Business offers the Master of Business Administration degree, the Doctor of Business Administration degree, and the Master of Professional Accountancy degree. The Undergraduate Division provides a broad range of programs with a student body in excess of 1,800 admitted students. The third division of the College, the Research Division, has an extensive and growing research program that adds much to the graduate programs.

ACCREDITATION

The College of Administration and Business is a fully accredited member of the American Assembly of Collegiate Schools of Business (AACSB). Louisiana Tech University is accredited by the Southern Association of Colleges and Secondary Schools (SACS). This accreditation covers the College of Administration and Business as one of the six colleges of the University and includes all curricula offered by the College. The Research Division, College of Administration and Business, is a fully accredited member of the Association for University Business and Economic Research (AUBER).

GRADUATE ASSISTANTSHIPS AND INSTRUCTORSHIPS

A limited number of graduate assistantships are available each year to students of high academic accomplishment. The stipend for graduate assistants is \$4,000. The graduate student who holds an assistantship is expected to carry a reduced classwork load which will vary depending on scholastic record and amount of work required by the assistantship. Teaching and research assistantships are awarded to doctoral students. The salary paid for these part-time teaching or research assignments is normally \$5,800.

RESEARCH DIVISION, COLLEGE OF ADMINISTRATION AND BUSINESS

The Research Division, College of Administration and Business, organized in the spring of 1948, is a member of the Association for University Business and Economic Research

(AUBER). All faculty members in the College of Administration and Business are staff members of the Research Division, College of Administration and Business. The purposes of the Division are: To encourage and promote research by faculty members in the various fields in the College of Administration and Business; to render technical assistance to faculty members and graduate students, particularly doctoral students, conducting research and assist in securing funds for research projects; to publish monographs and bulletins where it is deemed they will be of practical use to business and professional people; to plan and promote conferences and seminars conducted in the College of Administration and Business and publish the proceedings; to promote and conduct research on the Louisiana economy, including the preparation of economic and population data series; to develop cases, problems, and special syllabi for use in teaching courses offered in the College of Administration and Business.

MASTER OF BUSINESS ADMINISTRATION CURRICULUM

PURPOSE OF THE MBA

The Master of Business Administration degree has, in recent years, come to be the prestige degree in administration; and the number of students pursuing it is expanding quite rapidly. The College of Administration and Business offers this degree program with two objectives in mind. The first objective is to provide graduate instruction for students who have a major at the undergraduate level in one of the fields commonly offered by colleges of business administration. For these students, the program generally takes one year to complete and it offers a modest specialization with most of the work designed to strengthen their knowledge and skills in the area of management and administration.

The second objective is to provide a masters degree program for students whose undergraduate major was in a field outside the College of Administration and Business, in such areas as science, engineering, social science, agriculture, or some other field. For these students, the program generally takes two years except for those students who planned to take the MBA and, therefore, during their undergraduate program elected the foundation courses for the MBA or at least as many of them as they could schedule. For these students, the MBA degree program will take less than two years and for some only one year. Business, industry, governmental agencies, and other organizations are interested in obtaining some employees with a background in liberal education or a specialty at the undergraduate level in some field other than business, but who have capped their education with a masters degree with emphasis on the science and art of administration. Significant numbers of such holders of the non-business bachelors degree are now entering graduate school to pursue the MBA degree. Also, many industries are making it possible for students to return to the University to obtain the MBA degree after they have had work experience so that they can go back to their employment with better preparation for further advancement.

THE MBA PROGRAM

Many students entering the MBA program are from areas other than business and must take certain undergraduate

courses comprising a "common body of knowledge" of business core. Also, each student is presumed to have had college-level work in QA 390 (calculus & linear algebra) or the equivalent or take the course to remove the deficiency.

First presented below are the foundation courses which students must take if they did not pursue them while earning the undergraduate degree. The second group of courses, listed under the graduate phase, are the courses that all students in the MBA program must take.

No grade lower than 'C' is normally acceptable on any undergraduate course used to satisfy the foundation requirement in the MBA program. In addition, individuals must normally earn a 'B' average on foundation courses taken either as a graduate student or as post-baccalaureate work. The Director of the Graduate Division, College of Administration and Business, determines the acceptability of all work offered in satisfaction of the foundation and prescribes proper courses taken necessary to meet this requirement.

THE FOUNDATION

The following undergraduate courses are required as preparation for the graduate courses:

*Accounting 203,204,205 - Elementary Accounting I,II,III ..6	
Business Law 355 - Legal Environment of Business.....3	
Economics 215 - Fundamentals of Economics.....3	
Finance 318 - Business Finance.....3	
Management 311 - Organizational Behavior, Planning & Control.....3	
Marketing 300 - Marketing Principles & Policies.....3	
Quantitative Analysis 220 - Introduction to Business Information Systems.....3	
Quantitative Analysis 233 - Business Statistics.....3	
Quantitative Analysis 333 - Operations Management.....3	
TOTAL	30

*For the student who plans to earn a specialty in accounting, Accounting 303, 304, 305, 307, 308, 411, and 413 are required.

THE GRADUATE PHASE

The following group of graduate courses must be taken by all students in the program:

*Accounting 505 - Accounting Analysis for Decision Making	3
Business Communication 520 - Directed Research & Readings	3
Economics 510 - Managerial Economics.....	3
Finance 515 - Financial Management.....	3
Management 521 - Administrative Policy.....	3
Marketing 530 - Marketing Management.....	3
Quantitative Analysis 525 - Management Science	3
Electives**	12
TOTAL ***	33

*The student with accounting as a specialty will take Accounting 508.

**A thesis is not required, but occasionally one may be approved for a student by the Advisory Committee. The thesis would reduce the elective hours from 12 to 6.

***At least 27 semester hours must be 500-level courses.

MBA SPECIALTIES

The Business Administration Curriculum leading to the MBA degree is administrative or management oriented and is characterized by breadth of course-field requirements both in the foundation and graduate phase. It does not require and, in fact, does not permit a major in any particular field. It is an

interdisciplinary and interdepartmental degree program offered by the Graduate Division and the several academic departments of the College of Administration and Business.

This interdisciplinary characteristic is desirable for future administrators because their work requires some knowledge of many facets of administrative activities. The degree has become a prestigious one in the administrative circles of business, governmental, educational and other organizations.

However, many students desire a modest concentration in one area and the 12 semester hours of electives permit this to be done. In such cases the area of moderate concentration is called a "specialty" to distinguish it from the normal "major" as the term is used in master-of-science or master-of-arts degree programs.

For the convenience of both students and advisors, a group of suggested specialties is given below. If a student desires to take an extra course or two in order to further strengthen a specialty, this may be done but no such courses may be substituted for the required courses listed in the curriculum.

GENERAL: The 12 elective hours are "open" for those students who desire no specialty. For these students the elective hours will be chosen with the approval of their advisory committee.

ACCOUNTING: The 12 semester hours will include Accounting 507, 513, 517, 521.

BUSINESS EDUCATION: The 12 semester hours will include Education 525, Education 533, and Education 548 or 549, or both.

ECONOMICS: The 12 elective hours will include 12 hours approved by the Advisory Committee.

FINANCE: The 12 semester hours will be selected from Finance 516, 517, 518, 525, or other finance courses approved by the Advisor.

MANAGEMENT: The 12 semester hours will be chosen from Management 537, 539, 544, 545, 546, 547, 571 or other approved management electives.

MARKETING: The 12 semester hours will be composed of courses approved by the Advisory Committee.

QUANTITATIVE ANALYSIS: The 12 semester hours will include Quantitative Analysis 522, 523, 535, 540, 541, or other approved Quantitative Analysis electives.

ADMISSION TO MBA PROGRAM

Any person who holds a bachelor's degree, or equivalent, from an accredited college or university will be considered for admission regardless of the undergraduate field of study. An applicant for admission should understand that graduate study is not simply an extension of undergraduate work. Graduate study operates at a definitely higher level, demands scholarship of a high order, and places more emphasis on research and student responsibility.

Applicants must supply a score on the Graduate Management Admission Test (GMAT). Admission to the MBA program is normally based on the combination of an applicant's test score and previous academic record. Assessment of graduate potential is judgmental, and the MBA Admissions Committee grants admission only to those individuals who can demonstrate high accomplishment and/or future promise of success. Conditional admission will apply at the discretion of the Admissions Committee according to the regulations of the Graduate School.

Applicants may arrange to take the GMAT by writing and making applications to: Graduate Management Admission Test, Educational Testing Service, P. O. Box 966, Princeton, N.J. 08540. Applications to take the GMAT may be obtained from the Counseling Center, The Graduate Office, or Director of Graduate Studies office in the College of Administration

and Business. In making application, request that a copy of the score on the test be sent to College of Administration and Business, Louisiana Tech University, Ruston, LA 71272.

THE MASTER OF PROFESSIONAL ACCOUNTANCY PROGRAM

The Master of Professional Accountancy (MPA) program is designed to train individuals for accounting careers with a minimum of on-the-job experience, to prepare graduates for entrance examinations into the profession, and to provide the background necessary for holding responsible accounting and/or management positions. Students pursuing the MPA degree may be provisionally admitted to the Graduate School at the completion of their junior year. To be considered for admission to the graduate phase, students must submit an admissions application, a score from the Graduate Management Admissions Test (GMAT) and meet established GPA requirements. Courses for graduate credit can be taken after completion of the first four years and final admission to graduate school is attained.

The MPA program is a five-year curriculum. The first two years are pre-professional and the last three are professional with the fifth year being graduate-level training. Transcripts of students entering the program at the graduate level are evaluated and proper courses prescribed to satisfy the degree requirements. The undergraduate phase of the MPA program is given in the accounting section of the undergraduate portion of this bulletin.

The normal graduate phase of the MPA program is given below. The graduate phase may normally be completed in one year by accounting undergraduates who have performed satisfactorily in appropriate preparatory work.

Year 5

Accounting 506-Seminar in Financial Accounting OR	
Accounting 507-Contemporary Accounting Theory	3
Accounting 508-Advanced Accounting	
Analysis & Controls	3
Accounting 513-Advanced Auditing	3
Accounting 517-EDP in Accounting	3
Accounting 521-Cases & Probs. in Income Taxes	3
Accounting Electives	6
Economics 510-Managerial Economics	3
Finance 515-Financial Management	3
CAB Elective- (500-level non-accounting)	3
Quantitative Analysis (500-level)	3

33*

*Total must include at least 15 hours of 500-level accounting taken at Louisiana Tech.

ADMISSION

Admission to the graduate phase of the MPA program is based upon the combination of an applicant's academic record and score on the Graduate Management Admissions Test. Students may enter the program any quarter, and each individual has a major advisor to help plan the program.

Students who have earned an undergraduate degree in Business Administration with an overall GPA of 2.8 or greater will be considered for acceptance into the fifth year of the Master of Professional Accountancy Program. Each applicant will be considered individually. In addition to meeting the Common Body of Knowledge and business requirements, the applicant must have satisfactorily completed the following minimum accounting courses:

Intermediate Accounting	6
Income Tax	3
Managerial Cost Accounting	3
Advanced Accounting	3
Auditing	3

Upper Division Accounting Elective	
(300 or 400 level)	3

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In addition to the above requirements, the applicant must have completed a basic calculus course and an advanced level English writing course. Applicants with deficiencies in these areas must take either Math 222 or Q A 390 and either English 303 or 336 to remove the deficiency.

For information concerning admission to the MPA program contact the Director of the School of Professional Accountancy or the Director of Graduate Studies, College of Administration and Business, Louisiana Tech University, Ruston, LA 71272.

DOCTOR OF BUSINESS ADMINISTRATION OBJECTIVES OF THE D.B.A.

The Doctor of Business Administration degree is a professional degree at the highest level of formal study in business administration. It is intended to develop the breadth and depth of comprehension, the command of research methodology, and the understanding of related disciplines required for careers in university teaching and research, or for high-level professional and administrative positions in business, government, education, or other organizations. The Doctor of Business Administration degree is a broad, interdisciplinary degree. The D.B.A. candidate must expect to exhibit or develop a high level of competence and skills of individual inquiry and original research which characterize the doctorate. The student will work under the close supervision of a major professor and an Advisory Committee.

FIELD AND RELATED REQUIREMENTS

The Doctor of Business Administration degree program requires a knowledge to be developed in three subject fields chosen from the following areas: Accounting, Business Economics, Business Education, Finance, Management, Marketing, and Quantitative Analysis. Also, a Research Tool (Economics, Quantitative Analysis, and Research Writing courses) is required for all students. Regardless of the specific fields used by the D.B.A. student, the student must normally show credit for at least one course for graduate credit in each of these: Accounting, Finance, Marketing, and Administrative Policy. In addition, the student must normally show either graduate credit or undergraduate credit in at least one course in each of the following: management of human resources (organizational behavior), and production or industrial management. There is no requirement of a foreign language for the D.B.A. degree.

ADMISSION TO THE D.B.A. PROGRAM

To qualify to be considered for admission to the D.B.A. program, applicants must first have either already been admitted to graduate study in the College of Administration and Business or must meet the graduate admissions requirements of the Graduate School and the College and the doctoral admissions requirements of the Graduate School. If these requirements have been or can be met the application will be reviewed by a doctoral admissions committee to determine their personal characteristics, their research interest and capability, their motivation and perseverance, and their promise of success in high-level advanced study. The following requirements must also be met by applicants:

The academic record and score on the Graduate Management Admissions Test (GMAT) must demonstrate sufficient promise to indicate that they are qualified to perform successfully in the D.B.A. program. More emphasis will be placed on applicants' graduate record if they have already earned the masters degree than their undergraduate record.

Steps in applying for admission and in obtaining an admission decision are:

1. Arrange to take the Graduate Management Admission Test by writing: Graduate Management Admission Test, Educational Testing Service, P.O. Box 966, Princeton, N.J. 08540. Request that your test score be sent, after the examination is taken, to the Director of Graduate Studies in Business, College of Administration and Business, Louisiana Tech University, Ruston, La. 71272.

2. For an application for admission form write to: Director of Admissions, Louisiana Tech University, Ruston, La. 71272. Return the filled-in application to this same address.

3. Request all colleges and universities attended at any time in the past to send official transcripts to the address in No. 2 above.

4. Request three persons who know your qualifications for doctoral study to serve as references. Ask them to mail their letters of recommendation directly to the Director of Graduate Studies in Business, College of Administration and Business, Louisiana Tech University, Ruston, La. 71272. These letters should be submitted before or by the time the application is made.

5. When the above four steps have been completed, an invitation may be extended to you to come to the Campus for an Oral Admissions Examination. The admission decision will be made by the D.B.A. Admissions Committee after this examination, but all of your admission credentials will be used in making this decision.

HOURS REQUIRED AND GENERAL EXAMINATIONS FOR THE D.B.A. PROGRAM

A minimum of 60 semester credit hours of graduate course work is required beyond the bachelors degree of which a minimum of 30 credit hours, exclusive of credit for dissertation research, must be beyond the masters course or their equivalent. The Advisory Committee will decide the number of credit hours which students must take to provide the necessary strength in their fields.

Upon completion of the course requirements in each field, a written field examination will be scheduled, and after all field examinations have been passed and other requirements met, the student will be given an oral examination which will complete the general examinations and qualify the student for the Certificate of Candidacy. After the completion of the dissertation, there will be administered a final oral examination in defense of the dissertation. All examinations are to be taken on the main campus under the direct supervision of appropriate faculty members.

DISSERTATION

Credit and progress in the dissertation will be provided by registering in Administration and Business 590. Grades of S and I will be given for each 3 hours of credit pursued. There will be a final oral examination after the dissertation is completed.

RESIDENCE REQUIREMENTS

A minimum of three consecutive quarters and a minimum of 24 semester credits, exclusive of research and dissertation credit, beyond the masters degree or its equivalent are required to be taken on the Louisiana Tech campus. The student's Advisory Committee may specify additional residential course work beyond the minimum of 24 credit hours.

CANDIDACY AND TIME LIMITATION

After the student has successfully passed the general examination, the student will be admitted to candidacy. The student must complete the dissertation and pass the final oral examination within a maximum of five calendar years after being admitted to candidacy. The final oral examination must be completed successfully at least two weeks prior to the date the degree is expected to be received.

ADDITIONAL INFORMATION

Request additional information from: Director of Graduate Division, College of Administration and Business, Louisiana Tech University, Ruston, Louisiana 71272. Telephone (318) 257-4528.

GRADUATE PROGRAMS

College of Arts and Sciences

OFFICERS OF INSTRUCTION

PAUL J. PENNINGTON, Dean

PATTERSON B. MOSELEY, Associate Dean and Director of Research

KENNETH W. REA, Director of Graduate Studies

JOSEPH W. STROTHER, Director, School of Art and Architecture

JOHN C. TRISLER, Head, Department of Chemistry

PATRICK P. GARRETT, Head, Department of English

RICHARD L. EZELL, Head, Department of Foreign Languages

WILLIAM Y. THOMPSON, Head, Department of History

BILLY J. ATTEBERY, Head, Department of Mathematics and Statistics

WILLIAM H. BRUMAGE, Head, Department of Physics

GUY D. LEAKE, Jr., Head, Department of Speech

ADMISSION

In addition to the general admission requirements for the Graduate School, all students must submit GRE scores prior to admission to a graduate program. In exceptional cases, time will be extended to the next testing date, after which a student is subject to another review by the Admissions Committee. Scores will be used as one criterion of evaluating a student by the Admissions Committee.

GRADUATE CURRICULA

The College of Arts and Sciences offers the degree of Master of Arts in the fields of English, history, romance languages and speech. The degree of Master of Fine Arts is offered in art.

The degree of Master of Science is offered in the fields of chemistry, mathematics, and physics. The Master of Science degree with an option in clinical chemistry is offered as a joint venture between the department of chemistry and the Division of Allied Health.

DIVISION OF RESEARCH

The Division of Research in the College of Arts and Sciences realizes that graduate and undergraduate research are an integral part of the College. Their value is to stimulate both the faculty and the students to achieve a higher degree of knowledge and a desire to contribute this knowledge to their particular fields and related fields of study.

The purpose of a university is instruction, research, and public service. The research division is designed to carry out the second responsibility of these important phases of our educational program.

The main sources of funds that are available for research are obtained from Federal and State government agencies, private foundations, and industry. The Division is also designed to provide help and information to those interested in securing funds from these sources.

SCHOOL OF ART AND ARCHITECTURE

The Master of Fine Arts degree is offered by the Art Department in the School of Art and Architecture and is designed for those interested in the creative aspects of the arts. Work toward the Master of Fine Arts degree may be undertaken in four areas:

- (1) Studio (Stu.)
- (2) Graphic Design (G.D.)
- (3) Interior Design (I.D.)
- (4) Photography (Photo.)

MASTER OF FINE ARTS

In addition to meeting the general admission requirements for the Graduate School, an applicant must submit a slide portfolio which demonstrates a sufficient undergraduate art background. A Bachelor of Fine Arts degree is the best preparation. However, students who do not possess this background are not discouraged from applying, but in general must expect some undergraduate background work or additional graduate level work in order to pursue their graduate program effectively.

The candidate for the Master of Fine Arts must complete a minimum of 60 graduate credit hours. Additional course work beyond the 60 hour minimum may be required. A graduate committee, appointed for each student, shall review the qualifications of the student and set forth the courses required for the degree. A maximum of 27 credit hours is eligible for transfer from another institution, contingent upon Graduate Committee review and approval. A candidate's status is subject to review at any time. At the conclusion of graduate study, the candidate is expected to present a one-person exhibition, or similar demonstration of his/her accomplishments, which is accompanied by a written and visual record.

DEPARTMENT OF CHEMISTRY

Research specialties of the Chemistry Department are as follows: the mechanisms of organic reaction, the chemical kinetics of organic reactions, the chemistry of natural products, rosin chemistry, coordination compounds, thermodynamics of solutions, molecular spectroscopy, extraction compounds of metal analysis, and blood lipid chemistry.

MASTER OF SCIENCE WITH A MAJOR IN CHEMISTRY

In addition to the Graduate School admission requirements, an applicant must have earned college credit for courses as follows: one year each of general chemistry, quantitative analysis, organic chemistry, physical chemistry, and physics; mathematics through calculus, both differential and integral; and organic qualitative analysis.

The candidate for the master's degree must complete a total of 30 semester hours of graduate credit in chemistry, or 24 hours of chemistry and 6 hours in a related field, consisting of courses numbered 400 (for graduates and advanced undergraduates) and 500 (for graduate students only).

Nine of the required 30 hours must be earned by taking for credit courses numbered 500 (for graduates only).

In addition to the 9-hour requirement stated in the preceding paragraph, 6 hours of the total must be earned by taking for credit A & S 551, Research and Thesis, and by completing an acceptable thesis. A written examination will be taken in the major field and in other fields if the student's advisory committee requires it.

MASTER OF SCIENCE WITH AN OPTION IN CLINICAL CHEMISTRY

Candidates who hold a baccalaureate degree from an accredited college in medical technology, chemistry, or in an equivalent field are eligible for this program.

Candidates are required to complete a total of 30 semester hours of graduate credit in chemistry, or 24 hours of chemistry and 6 hours in a related field, consisting of courses numbered 400 (for graduates and advanced undergraduates) and 500 (for graduates only).

Nine of the required 30 hours must be earned by taking for credit courses numbered 500 (for graduates only).

In addition to the 9-hour requirement stated in the preceding paragraph, 6 hours of the total must be earned by taking for credit A & S 551, Research and Thesis, and by completing an acceptable thesis.

A graduate committee, appointed for each student, shall review the qualifications of the candidate and set forth the courses required for the Master of Science degree. This committee may also require deficiency courses to be taken without graduate credit upon the basis of each student's transcript.

DEPARTMENT OF ENGLISH

The graduate program in English is designed to be thorough, comprehensive, and culturally broad. Graduates of the program are qualified to continue study toward the doctorate degree and to teach English at the college level.

MASTER OF ARTS WITH A MAJOR IN ENGLISH

In addition to the Graduate School admission requirements, an applicant must have the bachelor's degree from an accredited college, including a minimum of 24 hours of English. At least 12 of these 24 hours must be of junior or senior level.

The candidate for the degree of Master of Arts with a major in English will follow one of two plans. Under Plan A he must complete a minimum of 30 hours of graduate credit in English, consisting of courses numbered 400 (for graduates and advanced undergraduates) and courses numbered 500 (for graduate students only). Six of the 30 hours credit must be earned in A & S 551, Research and Thesis.

Nine of the required 30 hours must be in courses offered exclusively for graduate students (500 series), not including thesis courses.

The requirements under Plan B are the same as those under Plan A, except that the student will not write a thesis and will complete a minimum of 33 hours of graduate credit in English, 15 hours of which must be 500 level courses. The student must also successfully complete written comprehensive examinations in four areas of English or American literature.

All English courses numbered 400 or above in the current catalog of Louisiana Tech University, unless otherwise designated, are acceptable for credit toward the degree of Master of Arts with a major in English.

DEPARTMENT OF FOREIGN LANGUAGES

The program is designed to provide students the opportunity to obtain a master's degree with complementary majors and minors in French and Spanish literature, civilization and linguistics. Its diversity allows students to follow tracks which qualify them to continue studies in a Ph. D. program, deepen their knowledge and qualifications as second language teachers, and/or serve as complement to their individually determined career goals.

MASTER OF ARTS IN ROMANCE LANGUAGES (FRENCH, SPANISH)

The graduate program is conducted jointly with the Department of Foreign Languages of Grambling State University. Students admitted to the program through Louisiana Tech University will be enrolled as Louisiana Tech majors and upon

completion of their programs will be graduated from Louisiana Tech University.

In addition to the Graduate School admissions requirements, applicants for unconditional admission are expected to have earned 24 semester hours above the intermediate level or equivalent in their proposed major (French or Spanish). At the beginning of their first quarter all students are required to take preliminary examinations. By the end of their first quarter they are to choose an area of concentration from the areas of literature or language and civilization. Advisory committees that reflect student's interest areas are then appointed.

Each candidate for the M.A. in Romance Languages degree must complete a 24 hour major in one language (French or Spanish) and a 12 hour minor in the other language. All coursework for the major and minor must be completed in 400- and 500- level classes. No more than 9 hours at the 400-level are acceptable toward completion of the major. A maximum of 6 hours at the 400-level may be accepted toward completion of the minor. All candidates for the degree must complete Romance Languages 501 or its equivalent for three hours of their major. French majors must take French 511 (History of the French Language) or equivalent. Spanish majors must take Spanish 501 (History of the Spanish Language) or equivalent. All Spanish majors' programs must include a study of both Spanish and Spanish American works. All programs must satisfy class requirements as stated above as well as the conditions of one of the following two plans:

Plan I (thesis): Total required credits - 36. If the thesis option is chosen, 3 to 6 hours of credit may be received for the thesis. These hours will count toward completion of the 24-hour major, the remainder of which will be satisfied through classwork. The 12-hour minor will be satisfied through classwork.

Plan II (non-thesis): Total required credits - 36. This plan requires 36 hours of classwork, of which 24 are in the major and 12 in the minor.

Prior to graduation each student is required to pass a comprehensive examination. Students must complete 24 hours of the degree in order to qualify to take the examination.

Transfer credits: A maximum of 12 credit hours is eligible for transfer from another institution, contingent upon review and approval. All graduate credits taken at Grambling State University and approved by a student's committee are automatically accepted under the terms of the cooperative program and are not considered transfer hours.

DEPARTMENT OF HISTORY

While course work is offered in many areas of history, the student will generally specialize in some phase of American, European, Latin American, or Asian history for his/her research assignment.

In addition to providing cultural enrichment, the program prepares a student for further study toward the doctorate degree as well as teaching at the college level.

MASTER OF ARTS WITH A MAJOR IN HISTORY

In addition to the admission requirements of the Graduate School, the applicant must have a minimum of 21 hours of history and a bachelor's degree from an accredited institution.

A student wishing to pursue the Master of Arts in history may choose between two programs of study:

Plan A: The plan is recommended for the student who will continue graduate work beyond the M.A. This student must complete 30 hours of graduate credit in history, 6 hours of which will be given for the completion of a thesis. The thesis

course is Arts and Sciences 551, Thesis Writing and Research (3 semester hours credit), which may be repeated once for credit. Nine of the remaining 24 hours must be in 500 level courses open only to graduate students.

Plan B: This plan is designed for the student who considers the M.A. as the terminal degree. The student must complete 33 hours of graduate credit in history. Eighteen of the 33 hours must be in 500 level courses open only to graduate students. The student will not write a thesis but must pass a written examination covering his/her major field of interest.

Every candidate for the M.A. must pass an oral examination covering his entire program.

All history courses numbered 300 or above in the current catalog of Louisiana Tech University, unless otherwise designated, are acceptable for credit toward the degree of Master of Arts with a major in history. Six hours of approved course work can be taken outside the Department.

DEPARTMENT OF MATHEMATICS AND STATISTICS

The Mathematics and Statistics Department offers indepth studies in Algebra, Analysis, Differential Equations, Probability and Statistics, and Applied Mathematics for the prospective researcher, teacher, or applied mathematician.

MASTER OF SCIENCE WITH A MAJOR IN MATHEMATICS

In addition to the university requirements for admission, the applicant must have a bachelor's degree with the equivalent of an undergraduate major in mathematics of not less than 30 semester hours. By the end of the first quarter of enrollment he is to choose one area from applied mathematics, pure mathematics, or statistics as his major area of interest. An advisory committee that reflects the student's major area of interest will then be appointed.

Each candidate for the M.S. degree will be required to have credit in the following Louisiana Tech University courses or their equivalent at another college or university: Math 405, Math 414, Math 480, Statistics 418.

In addition, each candidate for the M.S. degree must satisfy the conditions in one of the following two plans:

PLAN A: Thirty semester hours of graduate credit must be earned. A minimum of 24 semester hours, 3 of which are to be for an acceptable thesis, must be earned in the Department of Mathematics and Statistics. At least 9 semester hours excluding thesis credit must be in 500 level courses in the Department of Mathematics and Statistics. Up to 6 semester hours of graduate courses may be chosen from a related field if approved by the advisory committee.

PLAN B: Thirty-three semester hours of graduate credit must be earned. A minimum of 27 semester hours, 3 of which are to be for an acceptable project, must be in the Department of Mathematics and Statistics. At least 9 hours excluding credit for a project must be in 500 level courses in the Department of Mathematics and Statistics. Up to 6 semester hours may be chosen from a related field if approved by the advisory committee. The project will be a study in some area of mathematics or statistics not normally covered in a regularly scheduled course or it will be a solution to a problem that requires mathematics or statistics at the graduate level. A project must be approved by the student's advisory committee before credit is received.

DEPARTMENT OF PHYSICS

The Department of Physics offers instruction and opportunities for research in the areas of solid state physics, atomic and molecular physics, plasma physics, low temperature physics and many-body theory. The completion of the

master's program will prepare the student for further work toward the doctorate degree as well as for employment in government and industry.

MASTER OF SCIENCE WITH A MAJOR IN PHYSICS

In addition to the admission requirements of the Graduate School, the applicant must have a bachelor's degree with the equivalent of an undergraduate major in physics.

The minimum residence requirement for the master's degree with a major in physics is three quarters.

The candidate for the master's degree must complete a minimum of 24 semester hours of graduate credit in physics plus Mathematics 502 and Mathematics 544, or other courses acceptable to his/her thesis committee. Six of the required 30 hours must be earned by taking Arts and Sciences 551, Research and Thesis, and by completing an acceptable master's thesis.

During the first quarter of residence the student must take a preliminary oral examination over undergraduate physics. In addition, the student must pass an oral examination on his/her thesis.

DEPARTMENT OF SPEECH

The graduate program in speech provides training and experience in the following areas: speech communication; speech-language pathology; audiology; theatre arts. The student may choose a program of study which allows concentration in any one of the above areas.

MASTER OF ARTS IN SPEECH

In addition to the admission requirements of the Graduate School, the applicant is expected to have earned 24 semester hours of credit in speech which must be approved by the Department of Speech. Applicants who do not have 24 semester hours of credit in speech are expected to satisfy this requirement in the initial stages of their graduate program.

The graduate student in speech will follow one of two plans of study. Under Plan A he must complete a minimum of 30 hours of graduate credit in speech or 24 hours in speech, and 6 hours in a related field, which are approved by his/her major professor and by the head of the Department of Speech. Twelve of the required 30 hours must be in courses offered exclusively for graduate students (500 series), not including thesis courses.

In addition to the requirements stated in the preceding paragraph, six hours of the total must be earned by taking for credit A & S 551: Research and Thesis and by completing an acceptable thesis. A written and oral examination on all course work is required.

The requirements under Plan B are the same as those under Plan A, except that the student will not write a thesis and will complete a minimum of 36 hours of graduate credit.

Graduate credit not to exceed six hours may be earned in courses in fields related to speech. Such credit must be approved by the Department of Speech.

All graduate students in speech (speech pathology and audiology) must demonstrate acceptable proficiency in research and reporting. Such proficiency must be demonstrated in Speech 500: Introduction to Research.

All speech courses numbered 400 or above in the current catalog of Louisiana Tech are acceptable for credit toward the degree of Master of Arts with a major in speech.

The amount of work which may be taken on a part-time basis in speech will be limited to 12 semester hours. After completion of 12 hours on a part-time basis, a student may continue in speech only under full-time registration. Not all courses offered by the department will be open to part-time students. Only full-time students will be eligible for clinical practicum.

Note: All students in speech pathology and audiology are required to meet the academic, clinical experience and examination requirements set by the American Speech-Language-

Hearing Association for the Certificate of Clinical Competence in Speech Pathology or Audiology prior to the completion of the master's degree.

GRADUATE PROGRAMS

College of Education

OFFICERS OF INSTRUCTION

J. W. ANDREWS, Dean

CHARLES L. FOXWORTH, Associate Dean and Director, Graduate Studies

SAMUEL V. DAUZAT, Area Coordinator For Teacher Education

THOMAS P. SPRINGER, Area Coordinator for Behavioral Sciences

JAMES B. AKERS, Area Coordinator for Health and Physical Education

From its founding in 1894, one of the purposes of Louisiana Tech University has been the preparation of elementary and secondary teachers. Graduate teacher certification programs are reflective of the activities of the faculty of the College of Education and the Louisiana Tech Teacher Education Council. Teacher education has continued to maintain an increasingly important position in the University. More specific objectives are:

1. To provide experiences at the graduate level which are designed to prepare effective education and human services practitioners;
2. To promote the acquisition and use of knowledge based upon current scholarly research;
3. To critically explore professional ideas and practices and provide appropriate opportunities for diagnosis, remediation, and implementation;
4. To encourage the formation of appropriate attitudes, understandings, and skills toward exceptional students and individuals of all racial and ethnic backgrounds;
5. To maintain programs which reflect the best of current educational ideas and practices.

ACCREDITATION

The College of Education, one of six colleges of Louisiana Tech University approved by the Louisiana Board of Trustees for State Colleges and Universities, is accredited by the Southern Association of Colleges and Schools. As an individual unit, it is a member of the American Association of Colleges for Teacher Education and of the American Association of Business Teachers. Degree programs offered by the College of Education at the undergraduate and graduate levels are accredited by the National Council for Accreditation of Teacher Education.

DIVISION OF EDUCATIONAL RESEARCH AND SERVICES

The Division of Educational Research and Services was officially created in 1970. All faculty members in the College of Education are staff members of the Division. The purpose of the Division is to encourage research, writing, and demonstration projects by the faculty of the College and to assist in identifying appropriate avenues for the dissemination of the results.

The College of Education research committee is chosen from the academic department and division chairmen, with the director of the Division of Research and Publications serving as chairman. The committee is charged with establishing general policies and procedures for the Division and is responsible to the Dean of the College of Education.

Financial support for the activities of this Division is derived through the regular operating budget and from special grants of local school districts, state and federal agencies.

DEGREES CONFERRED

The College of Education offers programs leading to the Master of Arts, the Master of Science, and the Specialist degrees in Education.

THE MASTER'S DEGREE PROGRAM

Graduate work for the Master of Arts degree is offered in: art education, counseling and guidance, elementary education, English education, human relations and supervision, music education, reading, social studies education, special education, speech education, and speech pathology and audiology education.

Graduate work for the Master of Science degree is offered in: business education, health and physical education, mathematics education, and science education (biology, chemistry, or physics).

Graduate students in the College of Education, along with graduate students in the other academic colleges, are eligible to apply and compete for University Graduate Assistantship positions. Inquiries concerning these assistantships should be directed to the Graduate Office.

ADMISSION REQUIREMENTS

In addition to the general admission requirements of the Graduate School, a student seeking a master's degree in any of the teaching areas must hold a teacher's certificate for the area. If students do not have sufficient preparation to pursue graduate courses in their areas of certification, they will be required to take whatever courses are deemed necessary to remove the deficiency. These courses will not be considered as part of the student's graduate program.

Students desiring to enter a master's program in the College of Education are required to submit to the Director of Graduate Studies a satisfactory score on either the Miller Analogies Test (MAT) or the Graduate Record Examination (GRE). A satisfactory score is 22 or better on the MAT or a combined verbal/quantitative score of 550 on the GRE. Those students qualifying for unconditional admission may be granted provisional admission and allowed to submit the test score during the first quarter of study. Students seeking conditional admission must submit their score before an admission decision can be made. Arrangements for taking the exam may be made with the Counseling Center, Keeny Hall 322 on the Tech Campus, or with other testing centers.

ELEMENTARY EDUCATION

The candidate seeking a Master of Arts degree will be required to earn 33 semester hours, which may include 6 semester hours for a thesis. A minimum of 21 semester hours in professional courses and a minimum of 12 semester hours in specialized content areas are required. This work will consist of at least 18 semester hours credit from content and/or professional courses designed exclusively for graduate credit.

In the professional area, Education 541, Education 562, 3 semester hours in foundations (Education 512, 517 or 518), and 3 semester hours in teaching skills in communication

(Education 502 or Education 503) are required. Six semester hours in the teaching of content subjects are also required. This requirement will include two of the following three courses: Education 501, Education 504, and Education 509. A maximum of 3 semester hours in special education and/or principles of guidance may be applied to the candidate's program for the degree.

In the content area, a minimum of 3 semester hours from two of the following departments is required: (1) English or library science, (2) science, (3) social studies, and (4) math, Special Education or psychology. Students without undergraduate credit in contemporary math will include 3 hours of contemporary math as a deficiency in the graduate plan of study.

SECONDARY EDUCATION

The candidate seeking a master's degree in education with an academic major in a subject field will be required to earn a minimum of 33 semester hours which may include 6 hours credit for a thesis. This work will consist of at least 18 hours credit from academic fields and/or professional courses designed exclusively for graduate credit.

The candidate will be required to select with the approval of his Advisory Committee 12 to 18 semester hours of professional education courses. In the professional area, Education 541, Educational Research, Education 563, The Secondary School Curriculum; Education 516, Advanced Principles of Secondary Education; and 3 semester hours chosen from Education 512, Philosophy of Education, Education 517, History of Education, or Education 518, History of American Education, are required.

The core requirements cited above do not apply to graduate degrees in Art Education, Business Education, Health and Physical Education, and Music Education. The Master of Arts degree in Art Education requires 21 semester hours in Art based upon the student's background and the advisor's approval. The remaining twelve hours in professional Education must include Education 541 and three hours from Education 512, 517, or 518. The Master of Science degree in Business Education includes 21 hours in Business Education with the advisor's approval and 12 hours in Education which includes Education 541 and three hours from Education 512, 517, or 518.

The Master of Science degree in Health and Physical Education requires the successful completion of 33 semester hours. The twelve hours in professional Education must include Education 541 and 3 semester hours to be selected from Education 512, 517, or 518. The twenty-one hours in Health and Physical Education must include the following required courses: HPE 509, 526 and 534. The remaining 12 hours of elective physical education courses are selected with the approval of the advisor.

The thirty-three semester hours for the Master of Arts degree in Music Education includes the following required courses: Education 541, Education 512, 517 or 518, Education 426, 513, Music 402, Music 518, Music 519 and one professional Education elective. Ten semester hours may be selected from the following: Music 465, 476, 501, 502, 503, 504, 517, 524, 540, 561, 562, 563, 564, 565, 567, 568, plus applied music.

The 15 to 21 hours of work in the academic field should be chosen in view of the student's background of preparation as well as plans for future graduate work.

In the College of Education, students pursuing the degree of Master of Arts or Master of Science may elect to write either in the professional or the content field. If the thesis is to be written in the professional field, credit must be earned in Education 551, Research and Thesis. If it is to be written in

the content field, credit must be earned by taking appropriate thesis courses, as Arts and Sciences 551, etc.

COUNSELING

The Counselor Education Program is designed to prepare counselors for counseling and personnel positions in educational institutions and other service agencies. The program is designed to provide all enrollees with a basic preparation in counseling psychology with various elective options offered to prepare counselors for particular institutional settings, e.g., educational, employment, vocational rehabilitation, and community service agencies.

Three programs are offered in this field: certification as an elementary school counselor, certification as a secondary school counselor, and a general counseling program. Certification as an elementary or secondary school counselor requires permanent teacher certification prior to admission. The general counseling program does not require a permanent teacher's certificate for admission.

The program of study includes 21 to 24 semester hours of counseling and guidance courses, 3 semester hours in research methodology, and an additional 6 to 9 semester hours to be selected from approved psychology and counseling courses. Special Education 504, Education of Exceptional Students, is required for Elementary and Secondary Counseling programs. This work will consist of at least 18 hours credit from academic fields and/or professional courses designed exclusively for graduate credit.

Candidates for a degree in counseling must provide evidence by college transcripts or examination of a broad educational background including the behavioral and social sciences and the humanities. Students enrolling with insufficient preparation to meet these requirements will be expected to regard as deficiencies all courses needed to meet the standard.

Students interested in writing a thesis should discuss this with their advisor prior to their enrollment in graduate courses.

SPECIAL EDUCATION

The candidate seeking a Master of Arts degree in Special Education will be required to earn a minimum of 33 semester hours which may include a thesis. The master's degree program (other than the gifted and talented program) presumes previous special education certification and those candidates not so certified will be required to meet certification requirements in addition to degree requirements.

The program is designed to be generic rather than categorical. Students may elect to specialize in master teacher-severe/profound, master teacher-mild/moderate, gifted and talented, secondary special education, or assessment teacher. This work will include at least 18 hours credit from academic fields and/or professional courses designed exclusively for graduate credit.

READING

The candidate seeking a Master of Arts degree with a major in reading will be required to earn 33 semester hours, which may include 6 semester hours for a thesis. Twenty-one semester hours in professional courses and 12 hours in specialized content areas are required. This work will consist of at least 18 semester hours credit from content and/or professional courses designed exclusively for graduate credit.

In the professional area, Education 541, Education 544, Education 535, and Education 536 are required of all candidates. A minimum of one course must be selected from Education 403 or Education 503. The remaining 6 hours in professional courses are electives.

In the content area, 3 semester hours must be taken in two of the following content areas: English, library science, social science, science, and mathematics, psychology or special education. The remaining 6 hours of content courses may be selected from any of the above areas.

HUMAN RELATIONS AND SUPERVISION

Persons trained in Human Relations and Supervision frequently find employment in business, industry and government. Many positions in these settings require expertise in 'people skills' and organizational psychology.

The candidate seeking a Master of Arts degree with a major in human relations and supervision will be required to earn a minimum of 33 semester hours.

The candidate will be required to take these courses: Psychology 300, Psychology 513, Psychology 516, Psychology 524, and Counseling 508. The remaining 18 hours will be selected from counseling, psychology, management, and economics courses with the approval of his/her advisory committee. No more than 9 semester hours may be taken in business. This work will consist of at least 18 hours credit from academic and/or professional courses designed exclusively for graduate credit.

SPECIALIST IN EDUCATION PROGRAM

The degree of Specialist in Education will be awarded as the appropriate recognition of achievement as evidenced by:

1. Satisfactory completion of a program of graduate study of approximately two academic years.
2. Satisfactory performance on an oral and/or written examination designed to reveal the student's knowledge of his or her field of specialization.
3. Satisfactory completion of a research project.

REQUIREMENTS FOR ADMISSION

In addition to the regular College of Education requirements for admission to the Graduate School, the applicant must meet the following standards:

1. Hold a master's degree or its equivalent with adequate preparation in the field of specialization, as determined by the graduate's Advisory Committee.
2. Submit a satisfactory score on the Graduate Record Examination aptitude test (at least 800 on combined verbal/quantitative scores) or the Miller Analogies Test (25 or better score) during the first quarter of study.
3. Be approved by a graduate faculty committee.
4. Demonstrate proficiency in research methodology.

PLAN OF STUDY

The student's major advisor and Advisory Committee will design a plan of study for the student. Deficiencies in the background of preparation in the area of specialization will be included in the plan of study, but will not be counted in the total number of hours required for the completion of the specialist program. Any graduate student who has not submitted a Plan of Study by the end of the first quarter in the program will not be allowed to register as a graduate student until a Plan of Study has been submitted.

AREAS OF STUDY AND COURSE REQUIREMENTS

Areas of specialization available within the Specialist in Education program are counseling and reading.

The Specialist in Education with a major in Counseling must include the following courses on the student's plan of study: Counseling 525, Advanced Techniques of Counseling, Counseling 519, Advanced Theories of Counseling; Counseling 531, Internship; Psychology 511, Advanced Educational Psychology; Education 561, Research Design and Analysis; and Education 580, Specialist Research and Thesis. An additional 12 semester hours will be selected by the student's Advisory Committee.

The course requirements for the Specialist in Education with a major in Reading must include in his plan of study: Education 537-Seminar, Problems in Reading; Education 538-Supervision and Curriculum Development in Reading; Education 564-The Reading Process; or Education 542-Statistical Methods in Education; Education 512-Philosophy of Education or Education 518-History of American Education; Education 561-Research Design and Analysis, and Education 580-Specialist Research and Thesis. The remaining 6 or 9 semester hours will be selected by the Advisory Committee to meet the standards of the International Reading Association.

AMOUNT AND QUALITY OF WORK

The student will be required to complete a minimum of 30 semester hours of graduate work above the master's degree with a 3.0 average, with no grade below 'B'. This work will consist of at least 15 semester hours credit from content and/or professional courses designed exclusively for graduate credit. A course in which the grade 'C' is made will not count in the required number of hours, but will be included for the purpose of computing the grade-point average. A student with grades of 'C' or less in two courses will be dropped. Once a student has been dropped from the Specialist program, he is not eligible for re-admission.

A maximum of 9 semester hours of graduate work beyond the master's degree, earned prior to admission to the specialist program, may be included in the 30 semester hours of required work. A maximum of 6 semester hours of transfer work and 9 hours of extension credit may be applied toward the specialist degree.

Education Specialist Degree candidates must apply for admission to Candidacy following the completion of 12 semester hours. (Transfer hours will not count as part of the 12 hours.) At the time of Application, the student must have taken Education 561 and two required courses in the program. He or she must also have a 3.0 grade point average and an acceptable MAT or GRE score. A Prospectus of the proposed research should be presented to the Advisory Committee following the completion of 15 semester hours.

RESIDENCE REQUIREMENTS AND TIME LIMITATION

The minimum residence requirement is two quarters of full-time study beyond the master's degree.

All graduate work included in the plan of study of the Education Specialist degree must be completed within six calendar years.

RESEARCH REPORT AND ORAL EXAMINATION

The candidate must complete an approved independent research project or thesis as the culmination of his or her program. The research effort must be defended during the final oral examination to be administered by the Advisory Committee, during the quarter in which the student completes degree requirements.

GRADUATE PROGRAMS

College of Engineering

OFFICERS OF INSTRUCTION

C. RAY WIMBERLY, Dean
R. MICHAEL HARNETT, Associate Dean, Acting Head, Industrial Engineering
RANDALL F. BARRON, Director of Engineering Research and Graduate Studies
JACKIE W. D. ROBBINS, Head, Department of Agricultural Engineering
PAUL N. HALE, JR., Acting Head, Department of Biomedical Engineering
THOMAS R. HANLEY, Head, Department of Chemical Engineering
JOE R. WILSON, Head, Department of Civil Engineering
CHARLES N. SCHROEDER, Head, Department of Computer Science
MILTON R. JOHNSON, Head, Department of Electrical Engineering
LEO A. HERRMANN, Head, Department of Geosciences
ROBERT O. WARRINGTON, Head, Department of Mechanical Engineering
ROBERT M. CARUTHERS, Head, Department of Petroleum Engineering

The College of Engineering offers the Master of Science degree with majors (specializations) available in the departments of Engineering, in Computer Science, in Geology and in an Operations Research non-engineering Option in Industrial Engineering. An interdisciplinary, practice-oriented Doctor of Engineering degree oriented toward the practice of engineering at a high level of knowledge, is offered with emphasis on the functional areas — Energy, Environment, Electronics and Computers, or Human Accommodation Design. A Doctor of Philosophy degree is offered only in the Department of Biomedical Engineering.

ACCREDITATION

The undergraduate programs in engineering and the four-year programs in engineering technology are accredited by the Accreditation Board for Engineering and Technology.

FINANCIAL ASSISTANCE

Financial assistance is available to a limited number of qualified graduate students in the College of Engineering. This assistance includes graduate assistantships of \$4,000 at the master's level and teaching assistantships of \$7,000 at the doctoral level. Out-of-state tuition is waived for both types of assistantships.

Also available are research fellowships on funded research contracts sponsored by governmental agencies and private industry. A third type of financial assistance available is unrestricted fellowships by private industry. All inquiries concerning financial assistance should be directed to the head of the department in which the applicant wishes to major or to the Director of Engineering Graduate Studies. University assistantships with stipends as indicated above are also open to engineering graduate students. Inquiries concerning these assistantships should be directed to either the Director of Engineering Graduate Studies or to the Graduate School of the University.

The graduate student who holds an assistantship is expected to carry a reduced classwork load which will vary depending on his/her scholastic record and amount of work required by the assistantship. For a student on a full time (20 hours of work per week) assistantship, the maximum classwork load shall not exceed 7 semester hours of graduate credit, exclusive of Research and Thesis or Dissertation. In exceptional circumstances this limit may be relaxed to the 9 hour total specified by the University catalog, subject to recommendation of the student's advisor and approval by the department head and Dean of the College of Engineering.

RESEARCH ACTIVITIES

The College of Engineering is a member of the Engineering Research Council of the American Society for Engineering Education. Engineering Research is a very important function of the college which addresses technological advances as well as providing professional development opportunities for the faculty. The purpose of the research division of the college is to encourage, promote, and facilitate the performance of original research by members of the College of Engineering and to expedite the dissemination of the knowledge thus gained. The financial support of research projects is derived from two primary sources: (a) the operating budget of the Division of Engineering Research and (b) sponsorship of a project by an interested outside agency.

The College of Engineering regards original research and scholarly publications as a vital part of engineering education. A research thesis is required of all masters students except those approved for non-thesis option, and a dissertation is required of all doctoral students. The student works in concert with his/her Advisory Committee to plan, execute, and publish this research. Areas of most active research efforts are: biomedical engineering, computers, communications, cryogenics, energy, environmental engineering, human factors, materials, microprocessors, operations research, photoelastic stress analysis, simulation, structures, systems engineering, thermodynamics, transportation, transport phenomena and water resources.

THE MASTER OF SCIENCE DEGREE THESIS OPTION

In order to pursue the Master of Science, a student must be accepted as a major in one of the departments of Engineering or in the masters program in either Computer Science, Geology or in the non-engineering Operations Research Option of Industrial Engineering. In addition to any required remedial course work not taken for graduate credit, the student will be required to complete a minimum of 30 semester hours for graduate credit, of which a maximum of 6 hours will be earned in Engineering 551, Research and Dissertation. A minimum of 15 hours must be earned in courses open only to graduate students. In the Computer Science program, at least 15 hours must be earned in Computer Science and at least 9 hours in an approved minor.

NON-THESIS OPTION

The thesis requirement meets the needs of most masters students in the College of Engineering; however, non-thesis options are also available to those students who elect to take additional course work in lieu of writing a thesis, subject to the

approval of the student's Graduate Advisory Committee. In these cases, a minimum of 36 semester hours of graduate course work will be required, of which 3 semester hours shall involve a practicum on an advanced topic approved by the student's advisory committee. By University requirements, a minimum of 18 of these hours must be earned in courses open only to graduate students. The student must indicate his/her preference for the non-thesis option during the first quarter of graduate enrollment when his/her Plan of Study is submitted.

In the Computer Science non-thesis option, at least 18 semester hours must be earned in Computer Science, and at least 9 semester hours in an approved minor. A comprehensive examination and 3 semester hours credit in Computer Science 550 are required.

In the Operations Research non-engineering option, 21 semester hours must be earned in Industrial Engineering courses in Operations Research. A technical paper is required with 3 semester hours credit given for the report by enrolling in Industrial Engineering 550.

INDIVIDUAL REQUIREMENTS

The exercise of these options and the choice of courses will be proposed as a Plan of Study by the student and his/her Advisory Committee subject to review and approval (in order) by the major department head, the Director of Engineering Graduate Studies, the Dean of the College of Engineering, and the Dean of the Graduate School and University Research. The transfer of graduate credit from another graduate institution, graduate credit by examination, graduate credit as a graduating senior, or other credit earned other than as a regularly enrolled graduate student in the College of Engineering at Louisiana Tech must meet all University standards and is also subject to approval as part of the Plan of Study. Each major department will set its own criteria for allowing graduate credit for any undergraduate courses. Courses taken for graduate credit while the student is registered in the non-degree unclassified category will not be applied to a degree program without approval by the student's Advisory Committee.

GENERAL ADMISSIONS CONSIDERATION

The Dean of the College of Engineering, or a person designated by the Dean, reserves the right to be more restrictive on the admission requirements than those stated under the Graduate School section of this Bulletin.

ADMISSION TO THE MASTERS PROGRAM

For students desiring to major in Agricultural, Biomedical, Chemical, Civil, Electrical, Industrial, Mechanical or Petroleum Engineering, a baccalaureate degree with a major in the same engineering discipline from an ABET accredited institution is the best preparation. Students who do not possess this background are not discouraged from applying; but, in general, must expect some non-graduate credit background work in order to pursue their graduate program effectively and successfully. Since the masters degree is generally accepted as a higher level of intellectual accomplishment than the baccalaureate degree, the student must expect his/her program to be structured accordingly. The student will be required to remove any deficiencies in mathematics, science, engineering and communication. In particular, students with a baccalaureate in mathematics or the physical sciences should expect remedial courses stressing engineering analysis and synthesis.

Students entering the masters program in Computer Science will be expected to satisfy the following background requirements: programming ability in an assembler language and at least two high-level languages; satisfactory completion of courses in file processing, computer architecture, systems

programming, discrete structures, and data structures; and mathematics through integral calculus. These requirements can be met in either of the following ways (or in combination): courses taken prior to admission; courses taken as remedial work for non-graduate credit after admission; proficiency examination(s) administered by the student's major advisor after admission; or, by documented evidence to the major advisor and approved by major department head of equivalent knowledge gained through experience.

For students desiring to pursue the masters program in Geology, a degree in Geology from an accredited institution is desirable. Appropriate remedial work will be required for students not possessing the appropriate background and/or specific course work.

For students wishing to apply for the Operations Research non-engineering option in Industrial Engineering, a degree in either engineering, physical sciences, mathematics, business administration, economics, or computer science is required in addition to a minimum of 12 hours of calculus, 3 hours of applied statistics, 3 hours of operations research and satisfactory programming ability in Fortran IV. Applicants with the appropriate degree but without the specific minima will be required to remove these deficiencies.

Students desiring to enter any of the masters programs in the College of Engineering are required to submit to the Director of Engineering Graduate Studies by the end of the first quarter of registration for graduate credit a satisfactory score on the general (verbal and quantitative) section of the Graduate Record Examination. The scores may be used in the graduate admission decision of the College of Engineering. Students pursuing course work in the College of Engineering for graduate credit but not toward a graduate degree program at Louisiana Tech University are not required to take the GRE.

THE DOCTOR OF ENGINEERING PROGRAM

The Doctor of Engineering is an interdisciplinary program with the objective of educating students for the broad, professional practice of engineering at a high level of knowledge. Engineering practice revolves around technical areas such as engineering, mathematics, statistics and computer applications as well as those areas associated with governmental regulations, legal documents, business organization, management and planning, and economic considerations.

The Doctor of Engineering program, with no departmental designation, focuses on the four functional areas—Energy, Environment, Electronics and Computers, and Human Accommodation Design. Each student working together with his/her Advisory Committee will develop a Plan of Study, subject to approval, of a minimum of 90 hours of graduate work past the baccalaureate degree, including the dissertation, to meet the needs of the student and to maintain the intent of the Doctor of Engineering program. A minimum of 36 hours of graduate coursework in addition to the dissertation will be taken at Louisiana Tech. The Plan of Study will be structured to include:

1. A minimum of 18 hours in engineering core courses recommended for all students in the program.
2. A minimum of 18 hours in engineering specialty courses in one of the functional areas. A minimum of 18 hours in the chosen specialty must be taken at Louisiana Tech.
3. A minimum of 18 hours in supporting courses used to broaden the students background in such areas as management, accounting, statistics, mathematics and behavior analysis. A minimum of 12 hours must be taken in acceptable business courses.
4. A minimum of 18 hours (maximum of 24 hours) on a suitable dissertation involving engineering design, development or

any other major category of engineering work relevant to current engineering practice. The dissertation should normally be completed in one calendar year.

5. Additional graduate coursework as specified by the Advisory Committee.

6. Any remedial work required to satisfy subject matter deficiencies.

The program contains a preliminary (diagnostic) examination taken before or during the first quarter of admission to the doctoral program, a comprehensive examination over formal coursework and a defense of the dissertation. These examinations may be oral and/or written as determined by the student's Advisory Committee. The preliminary examination will include an examination on engineering fundamentals. A passing grade on the Engineer-in-Training examination satisfies the examination on engineering fundamentals. Students are required to complete their comprehensive examination before presenting and defending their dissertation.

No foreign language is required in the Doctor of Engineering program.

Doctor of Engineering students are required to complete the doctoral degree program in its entirety in three years after admission to candidacy, which occurs after successful completion of the comprehensive examination.

At least sixty per cent of all those serving on the Advisory Committee must recommend that the student has satisfactorily passed any of the examinations. None of the examinations may be taken more than three times.

THE DOCTOR OF PHILOSOPHY DEGREE PROGRAM IN BIOMEDICAL ENGINEERING

In order to pursue the degree, a student must be accepted as a major in the Department of Biomedical Engineering. The program is a balance of intensive and extensive formal coursework as a foundation, a sequence of examinations which may be oral or written or both, and the production of a dissertation.

The program consists of a minimum of 60 hours credit in formal coursework, exclusive of research and dissertation credit, beyond the baccalaureate. Choice of acceptable graduate level courses, including choice and composition of major and minor areas, will be established by the Advisory Committee in concert with the doctoral student, subject to approval as part of the Plan of Study.

The typical program includes a minimum of 30 hours of major coursework (this may cross departmental lines) and 12 hours in mathematics. Individual interests, need, and the demands of the engineering profession, both present and anticipated future, will guide these decisions with flexibility as the keynote. A minimum of 15 hours must be earned in Engineering 590, Research and Dissertation.

The schedule of examinations consists of a qualifying examination before or during the first quarter of admission to

the doctoral program, a comprehensive examination at or near the completion of formal coursework, and a defense of the dissertation. At least sixty percent of all those serving on the Advisory Committee must recommend that the student has satisfactorily passed any of the examinations. None of the examinations may be taken more than three times.

Prior to the comprehensive examination, the student must have met the French and German reading proficiency requirements of the Department of Foreign Languages. Substitution of an approved group of courses (6 hours minimum) in pure mathematics for French or a comprehensive knowledge of Russian for French and German, or other language options specific to an individual program, are permitted upon recommendation of the Advisory Committee, subject to approval as part of the Plan of Study.

ADMISSION TO THE DOCTORAL PROGRAMS

Prior to entering the Doctor of Engineering program a student must have a degree in an accepted engineering or science curriculum.

For students desiring to major in Biomedical Engineering, a baccalaureate degree with a major in an engineering discipline from an ABET accredited institution is the best preparation. Students who do not possess this background are not discouraged from applying, but, in general, must expect some amount of undergraduate remedial courses stressing engineering analysis and synthesis to prepare them for pursuit of their graduate program effectively and successfully.

Students entering either the Doctor of Engineering program or the Doctor of Philosophy program in Biomedical Engineering will be required to remove any deficiencies in mathematics, science, engineering, and communication. In addition, applicants to the Doctor of Engineering program will be required to remove any deficiencies in business.

Applicants are required to submit scores on both the general and subject portions of the Graduate Record Examination and the names and complete addresses of three academic or professional references who will be contacted directly by the College of Engineering. Pending receipt of the GRE scores and letters of reference, the applicant may be accepted as a non-degree, unclassified student by recommendation of either the department head of the student's major or by the Director of Engineering Graduate Studies. The applicant will be granted either an unconditional admission or will be rejected after review of all application materials. Although not required, the applicant should possess a masters degree.

DESCRIPTION OF COURSES

The 400 level courses are for undergraduate and graduate registration; the 500 level courses are for graduate student registration only. Credit for Research and Thesis or Research and Dissertation are listed as Engineering 551 and 590, respectively, rather than as a departmental listing.

GRADUATE PROGRAMS

College of Home Economics

OFFICERS OF INSTRUCTION

JEANNE M. GILLEY, Dean

LYNDA H. CLEMENTS, Associate Dean

NANCY M. TOLMAN, Director, Graduate Studies and Research

Individuals with education beyond the bachelor's degree are in demand in the areas of dietetics, home economics education, fashion merchandising, family studies, child development and the broad general area of home economics. The graduate home economics curriculum leading to the Master of Science degree was established to meet this demand. Three options allow students to select the program best suited to individual professional objectives. The graduate students are given the opportunity to enhance their knowledge in the rapidly changing field of home economics and to develop an appreciation of the current research in their chosen areas of study.

ACCREDITATION

Graduate and undergraduate degree programs in home economics education are accredited by the National Council for Accreditation of Teacher Education, approved for certification by the Louisiana State Department of Education, and approved to receive federal vocational funds. The graduate home economics education option is maintained through the joint activities of the faculty of the College of Home Economics and the Louisiana Tech University Teacher Education Council.

The College of Home Economics is an official member of the AHEA Agency Member Unit. The undergraduate programs are accredited by the Council for Professional Development of the American Home Economics Association and the American Dietetic Association.

The master's program in institution management has an optional experience component. This program has been approved as meeting the requirements for membership in the American Dietetic Association on an individual basis.

ADMISSION

In addition to the general admission requirements for the Graduate School, an applicant must have a bachelor's degree from an accredited college or university with a major in home economics or in a related field. If the major is in a related field, the need for supporting courses will be determined by the student's Advisory Committee.

An acceptable Miller Analogies Test score (minimum of 22) or Graduate Record Examination score (minimum of 650 for quantitative plus verbal), is required for all students. Preferably this score is submitted before or with the application for admission to graduate school; an individual seeking conditional admission must submit a score before admission. If not taken previously, unconditionally admitted students may take the Miller Analogies Test or the Graduate Record Examination during the first quarter of enrollment.

A test score will be used by the Advisory Committee as one criterion for evaluating the student's ability to undertake a graduate degree program. Students whose standards in oral and written communication are unacceptable may be asked to undertake courses to remedy the deficiency. In addition, at

the discretion of a student's Advisory Committee, the student may be required to enroll for additional home economics courses where deficiencies exist.

FINANCIAL SUPPORT

A limited number of university wide graduate assistantships are available to students majoring in home economics as they are to other graduate students. Application is made directly to the Director of Graduate Studies, College of Home Economics.

Financial support awarded by the College of Home Economics includes graduate assistantships and scholarships. The number and amount of these awards are dependent upon the availability of funds. Application for a graduate home economics assistantship or scholarship is made to the Director of Graduate Studies, College of Home Economics.

The Helen Graham Loan fund is available for up to \$500.00 on a low interest rate basis.

RESEARCH

Faculty members are available who are well qualified to supervise research problems within the limits of university facilities in fields of Food, Nutrition, and Food Service Administration; Home Economics Education; Child Development and Family Studies; and Clothing, Textiles, and Merchandising.

REQUIREMENTS FOR GRADUATION FOR ALL OPTIONS FOR THE MASTER OF SCIENCE DEGREE WITH A MAJOR IN HOME ECONOMICS

1. a. Thirty-six semester hours or b. Thirty semester hours which include credit in Home Economics 551, Research and Thesis.
2. A grade point average of B on all graduate work pursued.
3. A minimum of one-half of the hours in courses given exclusively for graduate credit.
4. Credit in Home Economics 504, Methodology in Home Economics Research.
5. Credit in Statistics 402, Introduction to Statistical Analysis.
6. A thesis or multi-quarter independent study is required for the Institution Management option and strongly recommended for other options.

OPTIONS FOR THE MASTER OF SCIENCE DEGREE:

The College of Home Economics has been given the authority to grant a Master of Science degree for the Home Economics curriculum in three options: General Home Economics, Home Economics Education, and Institution Management. Within the first two mentioned options, the student should select an area of emphasis. The areas that have been defined include the following:

I. General Home Economics Option

- A. Child Development and Family Relations Emphasis
- B. Clothing Emphasis
- C. Fashion Merchandising Emphasis

II. Home Economics Education Option

- A. Child Development and Family Relations Emphasis
- B. Vocational Home Economics Education Emphasis

III. Institution Management Option

With the guidance of the Advisory Committee, each student will develop an individualized plan of study according to the selected area of study. Recommended courses are listed

in the Graduate Student Handbook for the College of Home Economics which is given to the student at the time of initial enrollment.

GRADUATE PROGRAMS

College of Life Sciences

OFFICERS OF INSTRUCTION

HAL B. BARKER, Dean
JOHN A. WRIGHT, Associate Dean
HAROLD G. HEDRICK, Director, Graduate Studies
JOHN L. MURAD, Director, Life Sciences Research
MARGARET H. PEASLEE, Head, Department of Zoology
DALLAS D. LUTES, Head, Department of Botany and Bacteriology

The demand for trained persons in all disciplines of agricultural and life sciences is increasing in public service and private industry. A graduate program to encourage and nurture expanded investigation in specific areas of interest has developed to meet this demand. The graduate program in the College of Life Sciences prepares the student to accept the challenges of worldwide problems and to successfully arrive at technological solutions based on the premise of the scientific approach to research.

The College of Life Sciences offers programs of study leading to the degree Master of Science in Life Sciences with emphasis in the academic areas of Botany and Bacteriology, and Zoology with two options: (1) thesis option (30 hours) and (2) the non-thesis option (36 hours). The Master's plus 30 may also be obtained in Life Sciences.

DIVISION OF RESEARCH

The Division of Life Sciences Research is an integral part of the educational process of the Graduate Program. The primary purpose of the Division is to stimulate, support, and facilitate the activities related to all areas of research. The Research Division was created to encourage faculty and student participation in research programs of creativity and originality.

The Division is the administrative office for the coordination of all phases of research conducted by the various units within the College of Life Sciences. General policies and procedures governing the administration of the Division are formulated and governed by the Research Committee. The committee is chaired by the research director and is composed of an elected representative from each department within the College of Life Sciences and the Dean of the College.

Funds to finance research projects are obtained from successful awards on research proposals, research contracts, grants, operating funds within the University and/or contributions by friends of the University. Extramural funding is ordinarily from state and federal granting agencies. In-House projects are strongly encouraged through brief research proposals submitted to the Research Committee for consideration and funding.

ADMISSION

The Committee for Admissions to Graduate Studies in the College of Life Sciences requires the GRE scores on the Aptitude Tests of all applicants and the scores on one of the Advanced Tests, either biology or chemistry, depending on the applicant's area of interest. The grade point average on hours attempted, the trend in GPA on the last 30-60 hours, GPA of 2.75 on grades earned in the undergraduate science courses, personal recommendations, acceptable prerequisites for graduate study in chosen discipline, availability of major advisor, and an interview are the main criteria used in evaluating

an applicant for admission to Graduate Studies in the College of Life Sciences. The GRE scores provide a reference point to the Committee for Admissions for use as a comparison of the applicants to standardized national norms.

DEPARTMENT OF BOTANY AND BACTERIOLOGY ADMISSION REQUIREMENTS

Students may pursue work leading to the Master of Science degree in Life Sciences with an emphasis in Botany and Bacteriology, Thesis or Non Thesis Option. Students must meet the minimum admission requirements for the Graduate School. In addition, the minimum undergraduate training for the M.S. in Life Sciences with an emphasis in Botany and Bacteriology should include: a basic course in general botany, general biology, microbiology, bacteriology or biological science; a basic course in each of the areas of anatomy or morphology, physiology, taxonomy, wildlife biology or genetics; chemistry through at least organic, including laboratory procedures; and two terms of physics and mathematics through college algebra.

Beginning graduate students who do not have this minimum background are expected to satisfy the minimum requirements in the initial stages of the graduate program.

PROGRAM OF STUDY

The program of study for the degree of Master of Science in Life Sciences with emphasis in Botany and Bacteriology in the Thesis Option consists of a minimum of 30 semester hours of graduate credit of which at least 15 hours are taken in 500-level courses. Six hours are granted for research and thesis preparation as partial fulfillment of the degree plan. The student will pursue original research in the specialized field of interest selected by himself or herself and approved by the Advisory Committee.

DEPARTMENT OF ZOOLOGY ADMISSION REQUIREMENTS

In addition to meeting the minimum admission requirements of the Graduate School a candidate for the Master of Science in Life Sciences with emphasis in Zoology must meet the following undergraduate requirements. The Admissions Committee requires the applicant to have a bachelor's degree with not less than 30 semester hours in zoology or 21 hours of animal biology and the remaining hours in life sciences. All course work must be evaluated for acceptance by the Advisory Committee in the Department of Zoology. The applicant should have earned at least 12 semester hours credit in undergraduate chemistry including organic chemistry.

PROGRAM OF STUDY

The degree of Master of Science in Life Sciences, Thesis Option with emphasis in Zoology consists of 30 semester hours of graduate credit in Zoology. A maximum of 6 hours may be taken in a related field, to be approved by the student's Advisory Committee. In addition to graduate credit hours, each student may be required to remove subject matter deficiencies as determined by the student's Advisory Committee.

Fifteen hours of the total 30 may be selected from 400-level and fifteen from 500 level courses. Six hours of the 500 level courses are granted for Life Sciences 551 — Research and

Thesis. Life Sciences 509-Seminar-is required each quarter the student is in residence, with a maximum of 2 hours allowed toward the degree.

The graduate program in the Department of Zoology offers specialized training leading to the Master's degree in the following areas: animal ecology, cytogenetics, cytology, entomology, genetics, herpetology, ichthyology, limnology, mammalian physiology, mammalogy, ornithology, parasitology, and vertebrate anatomy. Graduates of the program are qualified to work in the fields of basic research in analytical or descriptive zoology, applied or developmental research, teaching, and industrial or governmental programs or administration.

NON-THESIS OPTION

This option is offered in specialized areas, such as Applied Botany and Life Science Education. This option is directed to enhance and broaden the knowledge and capabilities of elementary or secondary science teachers, medical technologists or bacteriologists and other types of scientists who pursue the master's degree program. The Applied Botany option offers an internship for 6 hours credit in lieu of the thesis requirement. The Science Education major can build on the baccalaureate training as well as build a stronger foundation to pursue the Master's plus 30 or doctorate in Science Education.

Courses of Instruction

Courses numbered 100 are designed for freshmen, 200 courses are for sophomores, 300-400 courses are for juniors and seniors, and 500 courses are for graduate credit. In some cases, 300 and 400 level courses may carry graduate credit; in such cases, students undertake additional work to bring the courses up to graduate level. Only students admitted to the Graduate School may enroll for 500-level courses.

No credit is allowed in any curriculum for any course with a catalog number beginning with zero (0) (i.e. English 099 etc.). These courses should be open only to those students who place in them by examination.

The numerical listing after each course title gives the following information: first number, laboratory hours per week; second, lecture period per week (90 minute periods with break included); third, credit value in semester hours; fourth, the total semester hours credit which can be earned in the course (the fourth number will appear only for those courses which may be repeated for credit). Example: 3-1-2- (6).

The following abbreviations indicate the quarters of the calendar the course normally will be offered: Su-Summer Quarter, F-Fall Quarter, W-Winter Quarter, and Sp- Spring Quarter. Where courses are offered on alternate years only, the words 'even' or 'odd' will indicate which years the course will be offered.

The following courses are presently graded on a S/U basis: All '00' sections (credit exams); Education 415, 416, 420, 580; HPE 100; Home Economics 127, 467, 498C, 498F, 487; Civil Engineering 257; Engineering 425; Research, Thesis and Dissertation 551, 590.

NOTE: Course offerings by quarter are subject to change to accommodate needs of students.

ACCOUNTING

- 203-204: Elementary Accounting.** 0-2-2 each. Basic understanding of concepts and methods of accounting; and the significance of such information to the sole proprietor and corporate entity. Su,F,W,Sp.
- 205: Elementary Accounting.** 0-2-2. Preq., Accounting 204. A continuation of Accounting 203-204 including accounting for manufacturing and partnership entities. Su,F,W,Sp.
- 210: Administrative Accounting** 0-3-3. For non-accounting majors. Preq., Accounting 204. This course considers the use of accounting for planning and control in managerial decision-making. Su,F,W,Sp.
- 303-304-305: Intermediate Accounting.** 2 1/2-1-2 each. Preq., Accounting 205 or 210. The theory and application of accounting procedures to financial reporting. Su,F,W,Sp.
- 307: Income Tax.** 0-3-3. Preq., Accounting 205, 210 or consent of instructor. A study of Federal income tax laws and state income tax laws and their effect on individual income. Su, F,W,Sp.
- 308: Managerial Cost Accounting.** 0-3-3. Preq., Accounting 205 or 210. A study of cost systems; accounting peculiar to manufacturing enterprises; making cost statements; and solving cost problems. Su,F,W,Sp.
- 312: Municipal and Government Accounting.** 0-3-3. Preq., Accounting 305. Accounting procedures of the Federal, municipal, and state governments. Attention is given to the preparation of budgets, financial statements, and to budgetary control. F.
- 408: Advanced Income Tax.** 0-3-3. Preq., Accounting 307. A continuation of Accounting 307 with further study into tax problems of fiduciaries, partnerships, and corporations; solutions of problems. W.
- 411: Advanced Accounting.** 0-3-3. Preq., Accounting 305. A study of higher accountancy; problems met in practical accounting; fiduciary accounting; partnerships and joint ventures; installment sales, consignment; and international operations. Su,F,W,Sp.
- 412: Advanced Accounting.** 0-3-3. Preq., Accounting 305 and preferably Accounting 411. A continuation of Accounting 411. Consolidated statement. Su,F,W,Sp.
- 413: Auditing.** 0-3-3. Preq., Accounting 305 and credit for or registration in Accounting 308. The study of basic auditing concerns, objectives and methodology. Su,F,W,Sp.
- 422: Taxation of Corporations and Shareholders.** 0-3-3. Preq., Acct. 307 and senior standing. In-depth study of tax law that pertains to corporations and shareholders; corporate organizations; liquidation; reorganization; and Subchapters S,W.
- 433: Accounting Systems.** 0-3-3. Preq., Accounting 411. A study of accounting systems and systems installations. Su.
- 451: Advanced Cost Accounting.** 0-3-3. Preq., Accounting 308. A study of the advanced phases of cost accounting; standard costs; distribution costs; cost analysis. F.
- 490: Contemporary Problems in Accounting.** 0-3-3. Intensive study of current advanced accounting topics. F, Sp.
- 491: Advanced Theory of Accounting.** 0-3-3. Preq., permission of advisor. Intensive study of current advanced accounting theory. W.
- 493: Advanced Auditing.** 0-3-3. Preq., Accounting 413. Intensive study of professional conduct, auditing standards, auditor's liability, reports, and internal auditing. Sp.
- 505: Accounting Analysis for Decision Making.** 0-3-3. A study of accounting data and their uses with the goal of aiding management in the use of such data for decision making.
- 506: Seminar in Financial Accounting.** 0-3-3. A brief historical development of accounting thought followed by investigations into controversial and special areas of financial accounting.
- 507: Contemporary Accounting Theory.** 0-3-3. An intensive study of recent developments, research and literature in accounting theory promulgated by the various professional accounting associations and related financial organizations.
- 508: Advanced Accounting Analysis and Controls.** 0-3-3. Cost data analysis and accounting controls in planning and controlling operations and in making special decisions.
- 513: Advanced Auditing.** 0-3-3. Preq., Accounting 413. Intensive study of professional conduct, auditing standards, auditor's liability, reports, statistical sampling, and internal auditing. Sp.
- 517: EDP in Accounting.** 0-3-3. A study of the adaptation of accounting procedures and systems to EDP operations, including the proper utilization of existing EDP equipment in auditing the firm.
- 521: Cases and Problems in Income Taxes.** 0-3-3. Preq., Accounting 307. Research cases covering various phases of income taxes; study of some source materials and research methods for ascertaining current rulings and trends in laws and regulations.
- 541: Accounting Analysis.** 0-3-3. Preq., Permission of advisor and all other accounting common body of knowledge courses. Accounting policy and analysis through integration and application of knowledge gained in accounting and accounting related courses; emphasizes interrelationships of major functions of business and analysis.
- 557: Special Problems in Accounting.** 0-3-3. Preq., consent of committee. A supervised individual project involving library and/or field work. A comprehensive written report and/or examination is required.

ADMINISTRATION AND BUSINESS

- 300: Special Problems.** 0-3-3. Preq., approval of instructor and department head. Selected contemporary business and economics topics. Topic will determine course admissions criteria. Su.
- 301: Independent Study.** 1-3 hours credit. Preq., approval of instructor and department head. Selected contemporary business and economics topics. Normally taken only by CAB students in their curricular specialty. Su.
- 400: Special Problems.** 0-3-3. Preq., Approval of instructor, department head, and dean. Special contemporary business and economic topics. Topic will determine course admissions criteria.
- 401: Independent Study.** 1-3 hours credit. Preq., Approval of instructor, department head, and dean. Selected contemporary business and economic topics in a student's curricular specialty.
- 550: Special Problems.** 0-3-3. Preq., Approval of instructor, department head, CAB Graduate Director. Selected contemporary business and/or economics topics. Normally taken only by CAB graduate students in their curricular specialty or major.
- 551: Research and Thesis.** 3 hours credit. Maximum credit allowed is 6 hours.
- 590: Research and Dissertation.** 3 hours credit. Minimum credit allowed is 15 hours.

AGRICULTURAL EDUCATION

- 250: Fundamentals of Vocational Agricultural Education.** 0-3-3. A course concerned with the history and development of vocational education as applied to agriculture, with emphasis upon recent legislation and state plan requirements. W.
- 301: Materials and Methods in Teaching Vocational Agricultural Education.** 0-3-3. Preq., junior standing. Specific techniques in organization and presentation of vocational agricultural subject matter to the high school agriculture student. Sp.
- 450: Advanced Agricultural Shop Methods and Safety.** 3-2-3. Preq., Agricultural Engineering 211 or consent of instructor. The school shop, equipment and safety as they are utilized in a learning environment.

AGRICULTURAL ENGINEERING

- 100: Introduction to Agricultural Engineering.** 3-0-1. Characteristics of the profession, engineering methods and engineering "tools". F.
- 110: Elementary Drafting.** 3-0-1. Introductory drafting, freehand lettering, care and use of drawing instruments. For non-engineering majors. F,W,Sp.
- 186: Solutions to Agricultural Engineering Problems.** 3-0-1. Engineering solutions to introductory problems in agricultural and forestry machinery, structures, electrification, and soil and water.W.
- 206: Agricultural Machines.** 3-2-3. Principles of operation, servicing, maintenance, and repair of farm implements and tractors. For non-engineering majors.
- 209: Small Engines.** 3-0-1. Principles of operation, construction, application, maintenance and overhaul procedures of small internal combustion engines. For non-engineering majors.
- 211: General Shop.** 6-0-2. Care and use of tools, gas and electric welding, cold metal work and woodwork. For non-engineering majors. F,W,Sp.
- 214: Machinery Principles.** 3-1-2. Power and energy relationships applied to machines in the biologically related industry. Machine components and lubrication. For non-engineering majors.
- 215: Soil and Water Conservation.** 3-2-3. Preq., Math 112. Principles of soil and water conservation. Land surveying, erosion control, irrigation, and drainage. For non-engineering majors. F,Sp.

- 216: Forest Machinery.** 3-1-2. The principles of selection, operation and maintenance of machines used in timber harvesting, planting and woodland operation. For non-engineering majors.
- 217: Microclimatology.** 3-0-1. A study of climatic elements in relation to agriculture and forestry. Modification of microclimates by sheltering, shading, ground cover, frost protection devices, windbreaks and irrigation, W, even.
- 266: Soil and Water Management.** 6-0-2. Preq., Agricultural Engineering 217. Engineering principles of location, design and construction of drainage and erosion control facilities. Hydrological, hydraulic and surveying principles used in the management of agricultural lands and waters. Sp, even.
- 276: Engineering Properties of Bio-Materials.** 3-0-1. Engineering properties of plant and animal materials related to harvesting, processing, storage and distribution. W.
- 288: Bio-Machinery Principles.** 3-0-1. Preq., Agricultural Engineering 186. Engineering analysis of components of machines used in the production of food and fiber. Sp.
- 301: Agricultural Structures.** 3-2-3. Preq., Engineering Mechanics 211. Heat transfer; airwater vapor mixtures; ventilation; systems analysis; functional design of agricultural structures.
- 303: Farm Buildings.** 3-1-2. The location, arrangement, design, construction, care, and repair of farm buildings. For non-engineering majors.
- 307: Farm Power Units.** 3-2-3. Preq., Agricultural Engineering 286 and Engineering Mechanics 211. Engineering principles of farm power units.
- 309: Microcomputers for Agriculture and Forestry.** 0-3-3. Computer programming systems and software for agriculture and forestry using BASIC. For non-engineering majors. F,Sp.
- 315: Agricultural Machinery Design.** 3-2-3. Preq., Engineering Mechanics 203. Functional requirements and principles of operation of agricultural and forestry machines. Design and specification of power transmission components. Cost analysis. Materials of construction.
- 319: Agricultural Chemical Applications and Techniques.** 3-1-2. Equipment and procedures used for applying agricultural chemicals (e.g., herbicides, insecticides, and fungicides). Calibration. Safety. Exam for certification of applicators. For non-engineering majors. F.
- 320: Electricity Applied to Bio-Systems.** 3-2-3. Practical application of electricity to farm and forest operations including electric motors, safety, wiring, lighting, refrigeration and heating. For non-engineering majors.
- 340: Logging Roads.** 3-1-2. Preq., Mathematics 112. Principles of planning, layout and construction of forest roads, including culverts and drainage. For non-engineering majors.
- 401: Agriculture Waste Management.** 0-2-2. Preq., Junior standing. Design of agricultural waste handling and disposal facilities including land application and on-site sewage treatment. Water pollution control and modeling.
- 403: Advanced Soil and Water Engineering.** 3-2-3. Preq., Engineering Mechanics 321 and Agricultural Engineering 266 or Civil Engineering 310. An advanced study of the engineering principles and practices involved in conserving soil and water. Irrigation and drainage design.
- 405: Rural Electrification.** 3-2-3. Preq., Electrical Engineering 213. The engineering application of electricity to problems in agriculture. Design of wiring; controls and machinery needed in crop drying; lighting; and agricultural processing.
- 409: Special Problems.** 0-1-1 (4). Preq., Senior standing or consent of the department head. Special problems in the field of agricultural engineering.
- 411: Seminar.** 0-1-1. Preq., senior standing or consent of the department head. Reviews and discussions of current scientific literature and recent developments in agricultural engineering.
- 415: Fluid Power and Controls.** 3-1-2. Preq., Physics 201 or consent of the department head. Analysis and design and fluid power and control systems. Study of components and their agricultural and industrial application.

- 418: Problems.** 0-1-1 (6). Preq., Junior standing. Problems in planning and mechanization of bio-systems.
- 420: Irrigation Principles.** 3-2-3. Preq., Agricultural Engineering 215. Irrigation costs, benefits, and terminology. System types, components, development, installation, operation, and maintenance. For non-engineering majors.
- 431: Soil Trafficability.** 3-1-2. Factors affecting traction and floatation of off-the-road machinery. For non-engineering majors.W
- 445: Microcomputer Applications in Agriculture.** 3-0-1. Computer systems and software for Agricultural and Forestry applications using the microcomputer. For non-engineering majors. Su.
- 470: Agricultural Processing Systems.** 3-2-3. Preq., Agric. Engr. 301 and Agric. Engr. 405 or consent of department head. The design and analysis of systems used in the processing of agricultural products.
- 520: Instrumentation.** 0-3-3. Preq., consent of the department head. Instruments used in carrying out scientific and applied research in agricultural engineering.
- 550: Special Problems.** 1-4 hours credit. Advanced problems in agricultural engineering will be assigned. Problems will be treated by current methods used in professional practice.
- 560: Seminar on Water Pollution Control.** 0-1-1.
- 561: Seminar on Water Pollution Control.** 0-1-1.
- 562: Seminar on Water Pollution Control.** 0-1-1.

AGRICULTURE

- 241-242-243: Agricultural Internship.** 3 hours credit each, 40 hours per week. Actual work experience in developing skills and acquiring technical knowledge in on-the-job situations. May be repeated for a total of 27 semester hours. Su,F,W,Sp.
- 411: Seminar.** 0-1-1 (3). Reviews, reports, and discussion of current problems in Agriculture and related fields. F,W,Sp.
- 441-442-443: Agricultural Internship.** 3 hours credit each, 40 hours per week. Work experience in the intern's major field of Agronomy, Horticulture, Animal Science, Dairying or Agriculture-Business. Su,F,W,Sp.

AGRONOMY

- 101: Crop Science.** 3-2-3. Basic concepts of production and management of agronomic crops. F, Sp.
- 200: Soils Laboratory.** 3-0-1. Preq., Chemistry 130, 131, 132. Coreq., Agronomy 202. Laboratory exercises to elaborate fundamental principles of soil properties; soil testing and Soil Survey reports. Su, F, W, Sp.
- 202: Soils.** 0-3-3. Preq., Chemistry 130, 131, 132. Coreq; Agronomy 200. A general study of soil science, emphasizing the relation of soil properties and processes to plant growth. F,Sp.
- 211: Forage Crops and Pasture Management.** 3-2-3. A study of the growth adaptation and culture of forage crops including types of plants, methods of establishment and improvement and use of forages. Su, F.
- 307: Field Crops.** 3-2-3. A study of fundamentals of production, harvesting, storage, marketing, and utilization of grain, and fiber crops. F.
- 308: Field Crops.** 3-2-3. A study of fundamentals of production, harvesting, storage, marketing and utilization of oil and sugar crops. Sp.
- 312: Turf Management.** 3-2-3. Establishment, maintenance, and management of turf grasses for homes, athletic fields, golf courses, playgrounds, parks, highways, airfields, and other uses. W.
- 315: Soil Fertility and Fertilizers.** 3-3-4. Fundamentals of soil fertility and plant nutrients; source, manufacture, use and properties of chemical fertilizers. W.
- 330: Soil Conservation and Crop Management.** 0-3-3. The causes and control of soil and water losses and the maintenance of soil productivity. W, even.

- 405: Soil Physics.** 3-2-3. Preq., Agronomy 200, 202. A study of the physical properties of soils and their relation to soil utilization. Sp, even.
- 409: Plant Breeding.** 3-2-3. Preq., Life Sciences 300. A study of the application of the fundamental principles of genetics to the development and maintenance of improved plant varieties. Sp, even.
- 410: Soil Development and Classification.** 6-2-4. Preq., Agronomy 200, 202. The genesis morphology, and classification of the soils of the United States, with particular reference to classification and mapping of Louisiana soils. Sp, odd.
- 415: Chemical Properties of Soils.** 3-2-3. Preq., Agronomy 200, 202 and Chemistry 130, 131, 132. A study of the chemical properties of soil solids, solution and adsorbed phases. W, even.
- 421: Weed Science.** 3-2-3. Weed control in Agricultural crops, including weed ecology, classification, dormancy, dissemination; seed anatomy and germination; herbicidal action and practical application techniques. F.
- 422: Pest Management.** 0-3-3. Basic concepts of integrated pest management; pesticides, biological control agents, varietal resistance, pheromones and trap crops, laws and regulations, labeling requirements, pesticide classification and safety. W.
- 423: Pest Management.** 3-2-3. Identification of insects, nematodes and disease-causing organisms affecting row crops of the south; monitoring procedures, economic threshold levels; steps in solving pest problems.Sp.

AIR FORCE AEROSPACE STUDIES

- 125: U.S. Air Force Organization (GMC).** 1-1-1. Analysis of the organization of the U.S. Air Force. Includes several major Air Force Commands. Laboratory begins Air Force customs and courtesies and military drill. F.
- 126: U.S. Air Force Organization and Doctrine (GMC).** 1-1-1. Completes the analysis of Air Force organization. Examination of Air Force doctrine and relationship with other U.S. military forces. Laboratory continues military drill and adds classroom presentations by advanced cadets on variety of aspects of Air Force life. W.
- 127: The U.S. Air Force Today (GMC).** 1-1-1. Discussion of the Air Force today. Includes topics such as professionalism and human rights. Comparison of U.S. and U.S.S.R. forces. Laboratory continues military drill and Air Force Orientation. Sp.
- 225: The Development of Air Power (GMC).** 1-1-1. The beginnings of manned flight from balloons and dirigibles, to the Wright Brothers, World War I and the interwar years. Laboratory includes practice in drill and ceremonies. F.
- 226: The Development of Air Power (GMC).** 1-1-1. Continuation of 225. A study of air power during World War II, the Berlin Airlift and Korea. Laboratory consists of leadership training and career orientation. W.
- 227: The Development of Air Power (GMC).** 1-1-1. Continuation of 226. A study of U.S. air power in the international arena from 1955 to the present. Laboratory consists of preparation for summer field training. Sp.
- 331: Air Force Leadership (POC).** 1-2-2. Analysis of leadership styles and the traits of a leader. Group dynamics. Laboratory provides leadership experience. F.
- 332: Military Management (POC).** 1-2-2. Study of management principles with emphasis on the view of an Air Force junior officer. Laboratory continues leadership experiences. W.
- 333: Communications for the Air Force (POC).** 1-2-2. Functions and formats of Air Force communications. Emphasis on written and oral communications used by junior officers. Laboratory continues leadership experiences. Sp.
- 425: Flight Instruction Program (POC).** 3-2-1. Required for designated pilot candidates. Theory of Flight; Federal Aviation Regulations, meteorology, navigation, and radio communication. Flying training preq; must be within 12 months of commissioning. 13 flying hours. F,W.

- 431: The Military in Contemporary Society (POC).** 1-2-2. Examination of military professionalism and existing patterns of civil-military relations. Laboratory provides advanced leadership positions. F.
- 432: Defense Organization and Policy (POC).** 1-2-2. Analysis of the international and domestic environments affecting U.S. defense policy. Laboratory begins preparation for transition from civilian to military life. W.
- 433: Conflict Management and Military Justice (POC).** 1-2-2. Examination of methods of managing conflict. History of the military justice system. Laboratory continues advanced leadership experiences and preparation for initial active duty. Sp.

ANIMAL SCIENCE

- 101: Survey of Animal Science** 3-2-3. A general survey including types, grades and classes of cattle, sheep, swine, and horses. Lab provides practical application for practices taught in lecture. Sp.
- 111: Introduction to Animal Science.** 3-2-3. Introduction to the field of Animal Science with particular emphasis on terminology, breeds and basic husbandry practices of beef cattle and horses. F.
- 112: Introduction to Animal Science.** 3-2-3. Continuation of Animal Science 111 with emphasis on terminology and husbandry practices of swine, sheep, dairy cattle and poultry and an introduction to veterinary medicine. W.
- 201: Introduction to Poultry Science.** 3-2-3. The principles and practices of breeding, incubation, nutrition, disease control, management practices and marketing of poultry. F.
- 202: Introduction to Dairy Science.** 3-2-3. Preq., Animal Science 101 or 112 or permission of instructor. Principles and practices of breeding, feeding and managing dairy cattle for maximum productivity with an introduction to processing and manufacturing. F,Sp.
- 204: Meat Animal and Carcass Evaluation.** 3-2-3. Selection of carcasses and wholesale cuts of beef, pork, and lamb; factors influencing grades, yields, and values in cattle, hogs, and sheep. W.
- 211: Introduction to Equine Science.** 3-2-3. A general survey of principles of horse management and husbandry, to include anatomy, unsoundness, nutrition, health and reproduction. F.
- 301: Principles of Animal Nutrition.** 0-3-3. Preq., Animal Science 101 or 112 and Chemistry 102. The source, chemical composition, characteristics, and nutritive value of farm animal feeds; rations. F.
- 303: Livestock and Livestock Products Judging.** 2-1-2. Preq., Animal Science 101 or 112 or permission of instructor. The theory and practice of judging livestock and livestock products. F.
- 307: Endocrinology and Milk Secretion.** 0-3-3. Development, structure, and functional processes of the endocrine and mammary systems. F.
- 315: Meats.** 6-1-3. Preq., Animal Science 101 or 112 and Bacteriology 210. Methods and practices involved in the processing and preservation of meats. W.
- 318: Physiology of Reproduction.** 3-2-3. Preq., Animal Science 307 or Zoology 320 or equivalent and Life Sciences 300. Physiology of reproduction of domestic animals including man. Histology, embryology and anatomy of reproductive systems; gametogenesis, fertilization, gestation and parturition. W.
- 319: Applied Reproduction of Farm Animals.** 3-1-2. Preq., Animal Science 318 or permission of instructor. Application of the methods and techniques of semen collection, evaluation, processing and preserving; insemination of females and pregnancy diagnosis; health, nutrition and management for maximum reproductive efficiency. Sp.
- 320: Intermediate Horse Management.** 3-2-3. Preq., Animal Science 211, 301, 318 or equivalent. An in-depth study of nutritional requirements and reproductive physiology of the horse. W.
- 401: Animal Breeding Principles.** 0-2-2. Preq., Life Sciences 300. Principles of breeding domestic livestock, including gene frequencies heritabilities, inbreeding coefficients, and pedigree analysis. W.
- 402: Animal Breeding Practices.** 0-2-2. Preq., Animal Science 401. Application of animal Breeding principles. Selection, mating systems, and use of computer in breeding and improvement of domestic livestock. Sp.
- 403: Advanced Livestock Judging.** 3-1-2. Preq., Animal Science 303. An advanced course in comparative judging of beef cattle, swine, sheep, and horses. F.
- 405: Applied Animal Nutrition.** 0-3-3. Preq., Animal Science 301. Growth, reproduction, lactation, fattening, and work production as it relates to the chemistry and physiology of nutrition. W.
- 407: Dairy Herd Management.** 6-1-3. Preq., Animal Science 202 and 301. Principles and practices in breeding, feeding and management of dairy cattle. Odd years.
- 408: Swine Production.** 3-2-3. Preq., Animal Science 301. Principles and practices of breeding, feeding, marketing and management of swine. F.
- 410: Ruminant Production.** 3-3-4. Breeding, feeding, marketing, and management of beef cattle and sheep. Sp.
- 411: Advanced Horse Management.** 6-1-3. Preq., Animal Science 320. Practical application of principles of nutrition, herd health, reproduction and marketing of horses. Sp.
- 420: Horse Behavior.** 3-2-3. Preq., Animal Science 411 and permission of instructor. Principles and procedures employed in tackless training of horses. Su.
- 421: Racetrack Backside Management.** 0-3-3. Preq., Animal Science 411 or permission of Department Head. Racetrack management pertaining to backside activities. Care and maintenance of horses and events leading up to and subsequent to running of a race. F.
- 422: Administration of Racing Facility.** 0-3-3. Preq., Animal Science 421. Opportunities in racetrack management. Legal aspects, facility management and racing administration, including duties of racing secretary, starters, jockey agents, etc. W.
- 423: Racetrack Management Practicum.** 6-0-2. Preq., Animal Science 421 and 422. Practical application of theory learned in Animal Science 421 and 422. Laboratories conducted at racetrack provide on-site experience in various phases of racetrack management. Sp.
- 425: Special Problems in Animal Science.** 4 1/4-0-1. (8) Preq., Written consent of instructor. Foal management and sale preparation; steer fitting and showing; Livestock Judging Team; or topic selected with consent of advisor.
- 440: Equine and Livestock Operations.** 0-3-3. Preq., Animal Science 411 or equivalent. Study of unique aspects of procuring and operating different categories of horse units and relationships of such units to other livestock and farm enterprises. F.
- 445: Computer Applications in Animal and Equine Science.** 0-1-1 (3). Preq., senior standing or permission of instructor. Elementary programming in BASIC with emphasis on microcomputer applications in livestock and equine management. Su.

ARCHAEOLOGY

- 401: Introduction to Archaeology.** 4-2-3. An introduction to the techniques of research and field work in Archaeology.
- 420: Indians of the Southwest.** 4-2-3. Preq., Archaeology 401. A survey of Indian Archaeology in the southwestern United States.
- 482: Christian Archaeology.** 3-2-3. Preq., History 101 or consent of instructor or junior standing. A study of the archaeology, architecture, and inscription in early Christian sites in and nearby Rome. Su.
- 483: Etruscan Archaeology.** 3-2-3. Preq., History 101 or consent of the instructor or junior standing. A study of the art, architecture, archaeology, history and inscriptions of the Etruscans. Offered only on location in Central and Northern Italy. Su.
- 484: Roman Archaeology.** 3-2-3. Preq., History 101 (or equivalent) or consent of instructor, and at least junior standing. A study of the monuments and antiquities of Classical Rome.

- 466: Egyptian Archaeology.** 3-2-3. Preq., History 101 or consent of instructor or junior standing. The study of the archaeology, art, architecture, history, and inscriptions of the ancient Egyptians. Field work in museums. Su.

ARCHITECTURE

- 110: Basic Design.** 6-0-2. An introduction to the theory and practices of design and composition, through problems involving the articulation of two-dimensional space, using geometrical and color relationships.
- 111: Architectural Theory.** 0-2-2. An introduction to the concept of Architecture as a language system, involving an examination of its basic vocabulary and grammar.
- 112: Communication Skills.** 6-0-2. An introduction to the principles and techniques of visualization and representational drawing with an emphasis on the development of freehand skills. F.
- 120: Basic Design.** 6-0-2. Preq., Arch 110 and 111. A continuation of Arch 110 at a more advanced and comprehensive level through problems involving the abstraction and composition of complex images using diverse media.
- 121: Architectural Theory.** 0-2-2. Preq., Arch 111. A continuation of Arch 111, involving a critical examination of more complex vocabularies with emphasis on general developments in the history of Architecture.
- 122: Communication Skills.** 6-0-2. An introduction to the principles, techniques and media used in creative and representational drawing, through studio problems requiring alternative means of graphic communication.
- 130: Three-Dimensional Design.** 6-0-2. Preq., Arch 120 and 121. Development of the experiences of Arch 110 and 120 through three-dimensional experiments in the composition of the point, line and plane as architectonic elements of spatial design.
- 131: Architectural Theory.** 0-2-2. Preq., Arch 121. An examination of a variety of historical and contemporary concepts of architecture with emphasis on broad philosophical, theoretical and critical techniques.
- 132: Advanced Communication Skills.** 6-0-2. Preq., Arch 122. A continuation of Arch 122. Advanced techniques for presentational and representational communication are explored through studio problems requiring sophisticated graphic or non-verbal communication techniques.
- 210: Architectural Design.** 9-0-3. Preq., Arch 130 and 131. An introduction to the formal language of architecture which translates basic design concepts into strategies for effectively combining and composing the fundamental components of architecture.
- 216: Design.** 6-1-3. Preq., Arch 110 and 120 or Art 115 and 116. Problems in three-dimensional design and increased emphasis the development of individual ideas through various materials such as clay, plaster, fiber glass, wood, plastics or steel. (Same as Art 216).
- 220: Architectural Design.** 9-0-3. Preq., Arch 210. A continuation of Arch 210 emphasizing the controlled combination of fundamental elements within the framework of contextual, functional, behavioral and symbolic constraints.
- 221: Theory of Structures I.** 0-3-3. An introduction to structural concepts, principles, systems and materials with particular emphasis on their impact on architectural form. W.
- 230: Architectural Design.** 9-0-3. Preq., Arch 220. A culmination of a three part sequence through which the fundamental ideas, issues, components and strategies relating to architecture have been introduced, examined and explored.
- 231: Contemporary Architectural History.** 0-3-3. Preq., Art 367. An examination of the rise of the modern and contemporary movements in architecture with reference to their social, cultural, intellectual and technological contexts.
- 232: Environmental Systems I.** 0-3-3. A study of the influence of natural environmental factors on building form with particular emphasis on the use of passive technologies. S.
- 307: Specifications and Working Drawings.** 6-1-3. Detailed specifications, supervision, and superintendence. Sp.
- 310: Advanced Architectural Design.** 12-0-4 (8). Preq., Arch 230. Critical examination in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 312: Environmental Systems 2.** 0-3-3. A continuation of Architecture 232 with an emphasis on the use of technological solutions for environmental control. F.
- 320: Advanced Architectural Design.** 12-0-4. Preq., Arch 310. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 321: Architectural History Seminar.** 0-2-2 (6). Preq., Arch 231. A critical analysis, using the seminar mode, of selected concepts, precedents and periods in the history of architecture and environmental design.
- 330: Advanced Architectural Design.** 12-0-4. Preq., Arch 320. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 331: Advanced Theory of Architecture.** 0-2-2. Preq., Arch 320. A study of the evolution of architectural theory; from Vitruvius to contemporary theorists with special emphasis on the writings of leading architects and aesthetic philosophers.
- 350: Visual Studies.** 6-1-3 (9). Design theory and methods with form study in physical environment. Studio exercises in visual perception, organization, structure and communication.
- 360: Techniques Workshop.** 4-0-1 (4). Explorations and exercises in various techniques, methods and processes related to design and the practice of architecture.
- 380: Applied Studio Practices.** 6-1-3 (9). Second year Associate Degree candidates. This course offers students practical problems in graphic and visual communications.
- 400: Studio Problems.** 6-1-3 (9). Specialized studio problems in aqueous media on paper.
- 410: Advanced Architectural Design.** 12-0-4 (8). Preq., Arch 330. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 411: Planning and Urban Design Theory.** 0-2-2. Preq., Arch 330. An examination of the process of design and change in urban environments, with discussion of strategies and processes for intervening in the development of these environments.
- 420: Advanced Architectural Design.** 12-0-4. Preq., Arch 410. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 421: Theory of Structures 2.** 0-3-3. A study of advanced structural concepts, principles, systems and materials emphasizing their impact on current and emerging trends in design. F.
- 430: Advanced Architectural Design.** 12-0-4. Preq., Arch 420. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 431: Architectural Seminar.** 3-1-2 (6). A critical analysis of selected topics having specific architectural relevance in the area of either theory, technology, economics, design or practice.
- 445: Professional Problems.** A (4 1/2-0-1); B (9 1/2-0-2); C (13 3/4-0-3). Individual study with variable credit of selected professional problems having educational significance. Topic and credit by agreement with the Department Head.
- 446: Software Applications/Architecture.** 1-1-1. An examination of the range of specialized architectural applications supported by commercial software packages produced for microcomputer use. Su.
- 447: Computer Assisted Design and Drafting.** 1-1-1. A survey of existing CADD software and hardware directed toward a Cost/Benefit analysis of the computer's graphics role in an architect's office. Su.

- 450: Related Readings.** A (4 1/2-0-1); B (9 1/2-0-2); C (13 3/4-0-3). Guided readings in a specific aspect of architectural theory or practice under the supervision of a faculty member. Credit and topic by agreement with the Department Head.
- 470: Advanced Architectural Design.** 12-0-4 (8). Preq., Arch 430. Critical examination, in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 471: Professional Practice.** 3-1-2. A sequence of critical analysis in which the ethics, policies, relationships and legal principles and processes affecting professional architectural practice are explored.
- 472: Architectural Seminar.** 0-2-2 (6). A critical analysis of selected topics relating to the history, theory and criticism of architecture.
- 473: Design Research.** 2-2-2. A study of research method for the architect including the execution of scholarly research and the completion of a written thesis statement with significant design implications. F.
- 474: Computers for Designers.** 2-2-2. An introduction to the use of computers in design emphasizing the development of programming skills. F.
- 480: Advanced Architectural Design.** 12-0-4. Preq., Arch 470. Critical examination in the "professional concentration" design studios, of issues having broad architectural and educational relevance.
- 481: Professional Practice.** 3-1-2. Preq., Arch 471. A critical examination of the techniques and strategies conventionally used in the professional practice of architecture within the framework of both traditional and contemporary contexts.
- 482: Architectural Programming.** 0-2-2 (4). Advanced techniques of research, analysis and programming through which the effect of pre-design issues and constraints are examined.
- 483: Computer Applications.** 2-2-2. Preq., Architecture 474. Advanced micro-computer applications programming with an emphasis on graphics and design related programs. W.
- 490: Degree Design Project.** 12-0-4. Preq., Arch 473. Independent degree design project under the supervision of a selected faculty member, in which the student is given the opportunity to create a theory-testing design.
- 491: Professional Practice.** 3-1-2. Preq., Architecture 481. An examination of the pre-contract and contract phases of architectural projects with an emphasis on strategies for effective contract administration. S.
- 492: History of Italian Architecture.** 0-4-2. An extensive study of the development of Italian Architecture, urban form and landscape design from the Early Etruscan period throughout the Baroque movement.
- 556: Problems.** 12-2-6. Preq., fifth year classification in Architecture. Special projects in architecture and landscape. Projects must be approved by Department Head.
- 559: Specialized Individual Studio Problems.** 6-1-3 (9). Permission and project approval must be obtained from Department Head.

ART

- 101: Art Structure.** 3-1-2. (For education majors). Foundation course for art study. Theory and practice in the elements of art as a basis for appreciation of fine arts and crafts of the past and present.
- 102: Art Structure.** 3-1-2. (For education majors). A continuation of Art Structure 101 in the elements and principles of art structure. Problems in drawing, painting, design, lettering, poster composition.
- 105: Colloquium.** 0-1-1. An orientation course (lecture, seminar or demonstration) which strives to acquaint the student with the various disciplines and directions in the visual arts. Freshmen art majors only, or with permission of instructor.
- 116: Design.** 6-1-3. Formal problems of the theory and practice in the elements and principles of design.
- 118: Design.** 6-1-3. Continuation of Art 115.
- 117: Mixed Media.** 6-1-3. A materials and techniques course with the emphasis on experimental investigations which combines both traditional and contemporary approaches.
- 120: Painting.** 6-1-3. Creative approach to the problems in painting with emphasis on observation and representation.
- 121: Painting.** 6-1-3. Continuation of Art 120.
- 125: Drawing.** 6-1-3. A study of the principles underlying all creative and representation drawing.
- 126: Drawing.** 6-1-3. A continuation of Art 125.
- 170: Introduction to Photography.** 6-1-3. The fundamentals of photography. The use of the camera, and development of black and white and color transparencies. No prerequisite.
- 173: Printing Black and White Photographs.** 6-1-3. Preq., Art 170. An introduction to black and white printing, proper utilization of darkroom, and presentation of photographs for exhibition. F, Sp.
- 175: Art in Home Economics.** 3-2-3. Art and design problems relevant to work in the field of Home Economics. Art appreciation and design problems of home and community life.
- 201: Art Education.** 3-1-2. A continuation of Art 102 with emphasis on craft materials and their use in the elementary grades. Ways in which art activities contribute to the social studies.
- 215: Design.** 6-1-3. Preq., Art 115 and 116. The study of color and the interaction of color in design.
- 216: Design.** 6-1-3. Preq., Arch 103 and 105 or Art 115 and 116. Problems in three-dimensional design and increased emphasis on the development of individual ideas through various materials such as clay, plaster, fiber glass, wood and plastics. (Same as Architecture 216.)
- 220: Painting.** 6-1-3. Creative approach to the problems in painting with emphasis on the human figure.
- 221: Painting.** 6-1-3. Continuation of Art 220.
- 225: Drawing.** 6-1-3. The study of human anatomy as related to problems of art.
- 228-229: Figure Drawing.** 6-1-3 each. Drawing in media from models.
- 240: Ceramics.** 6-1-3. Introductory course on methods of ceramic construction with emphasis on the creative aspects of pottery.
- 241: Ceramics.** 6-1-3. Continuation of Art 240 with emphasis on the use of the potter's wheel.
- 250: Beginning Interior Design Studio.** 6-1-3. Preq., Art 116 and 220. The introduction of the basic elements of interior design; primary and secondary function, space, form, structure, color, and texture through studio experiences. Sp.
- 270: Concepts of Photographic Imagery.** 6-1-3. Preq., Art 173. An introduction to the many facets of contemporary photography from documentary to conceptual. An overview of approaches to problem solving with the camera. F.
- 271: Experimental Black and White Techniques.** 6-1-3. Preq., Art 173. Problems in manipulating black and white processes including the use of graphic arts films, Sabattier effect, toning, multiple printing, sequential imagery and photo-sensitive materials. W.
- 308: The Mechanics of Graphic Design.** 6-1-3. An introduction to the equipment, printing methods and the typography of the graphic designer.
- 309: Symbols of the Graphic Designer.** 6-1-3. Preq., Art 308. Studio problems dealing with contemporary design solutions that incorporate typography as an art element.
- 312: Packaging.** 6-1-3. Preq., Art 308. Studio problems involving research and design experiences focusing on packaging design. Sp.
- 315: Layout.** 6-1-3. Preq., Art 308. Primary concern will be with newspaper and magazine design and layout.
- 316: Advanced Layout of Ad Campaigns.** 6-1-3. Preq., Art 309, 312, 315. Continuation of Art 315. Layout, with advanced problems in advertising campaigns. F.

- 317: Environmental Graphics.** 6-1-3. Preq., Art 309, 315. Emphasis on environmental graphics problems such as super graphics and signage and numbering systems. F.
- 320: Painting.** 6-1-3. Creative approach to the problems in painting with emphasis on experimentation in various media, subjects, and techniques.
- 321: Painting.** 6-1-3. Continuation of Art 320.
- 325: Illustration.** 6-1-3. Preq., Art 308. Emphasis on line and wash techniques and exploring other mediums of contemporary illustration.
- 326: Advanced Illustration.** 6-1-3. Preq., Art 309, 315, 325. Advanced illustration problems in record jackets, posters, magazine covers, book covers, and story illustrations. W.
- 330: Screen Printing.** 6-1-3. Introduction to silk-screen printing with emphasis upon photo-sensitive screen process.
- 331: Introduction to Printmaking.** 6-1-3. Preq., Art 330. A basic survey of printing techniques in linoleum cut, wood cut, collograph, dry point, etching and lithography. F,Sp,Su.
- 346: Ceramics.** 6-1-3. Preq., Art 241. An Advanced course in ceramic design and construction with the introduction to the construction and use of ceramic kilns.
- 347: Ceramics.** 6-1-3. Preq., Art 346. A continuation of Art 346.
- 352: Interior Design.** 6-1-3. Preq., Art 250. Studio problems in the space planning and design of interior environments, emphasis on design methodology, materials, furnishing systems, detail drawing and presentation. F.
- 353: Interior Design.** 6-1-3. Preq., Art 352. A continuation of Art 352.
- 354: Interior Design.** 6-1-3. Preq., Art 353. A continuation of Art 353.
- 355-356: Environmental Factors.** 6-1-3 each. Preq., Junior standing. Interior environment support systems such as lighting, electricity, acoustics, heating, ventilation and air-conditioning, plumbing. Human factors and principles are applied to interior situations. F.
- 364: Art Appreciation.** 0-3-3. Study and enjoyment of art in its various expressions. Principles for critical judgment. Art in dress, the home, furniture, textiles, pottery, painting, graphic arts, and civic art.
- 366: History of Art.** 0-3-3. A survey of the painting, sculpture, architecture, minor arts of ancient, medieval, and modern periods.
- 367: History of Art.** 0-3-3. A continuation of Art 366.
- 368: History of Art.** 0-3-3. Travel to the art centers of Europe visiting the galleries and museums in cities such as London, Amsterdam, Paris, Rome, Florence, etc.
- 370: Color Photography.** 6-1-3. Preq., Art 270. An introduction to printing film negatives and transparencies onto color photographic papers. Sp
- 372: Studio Photography.** 6-1-3. Problems in controlled lighting for portraiture, figure, fashion, product, and introduction to view camera operation.
- 373: Commercial Photography.** 6-1-3. Preq., Art 372. An introduction to commercial applications of photography. Large format camera operation is studied with assignments covering a wide range of topics from Architecture to Fashion. W.
- 374: Commercial Portfolio.** 6-1-3. Preq., Art 373. A concentrated study in one area of interest and production of a portfolio suitable for presentation. Large format color will be used extensively. Sp.
- 390: Sculpture.** 6-1-3- (9). Investigations in sculptural processes, materials, and techniques.
- 391: Sculpture.** 6-1-3- (9). Creative approach to problems in metal casting, fabrication, welding, mold technology, and foundry procedures.
- 412: Studio Problems.** 6-1-3- (9). Advanced problems in art for reproduction techniques. F, W, Sp.
- 415: Studio Problems.** 6-1-3 (9). Advanced problems in design.
- 417: Senior Portfolio.** 6-1-3. Preq., Senior standing, spring quarter prior to graduation. The designing and preparation of a job portfolio and resume that will also culminate in an exhibition of graduating seniors. Sp.
- 420: Studio Problems.** 6-1-3- (9). Advanced problems in painting.
- 427: Advanced Drawing.** 6-1-3- (9). Interpretive approach to drawing.
- 430: Studio Problems.** 6-1-3- (9). Advanced problems in printmaking.
- 440: Studio Problems.** 6-1-3 (9). An elective course in advanced crafts.
- 451: Furniture Design.** 6-1-3. Preq., Consent of instructor. Junior standing. Original student furniture design concepts are developed through a coordinated study and analysis of function, anthropometrics, structures, materials, construction and industrial processes. F.
- 452: Interior Design.** 6-1-3- (9). Preq., Art 354. Intensive interior design experiences to include advanced, complex problems utilizing systematic design methodology and requiring comprehensive solutions.
- 456: Professional Practices.** 0-3-3. Preq., Junior standing. Preparation for entering the professional practice of interior design; includes office procedures, business ethics, contract documents, specifications, and market sources, etc. W.
- 457: History of Furniture.** 0-3-3. Preq., Art 366, 367. History of periods of furniture design from antiquity to industrial revolution, including study of dominant influences and characteristics of historical interiors, furnishings, ornamental design. F.
- 458: History of Furniture.** 0-3-3. Preq., Art 457. A history survey of the development of contemporary design from art Nouveau to the present, including architectural elements, furniture, lighting, wallcovering, flooring and building materials.
- 466: History of Modern Art.** 0-3-3. Historical and critical appraisal of art in the 19th and 20th centuries.
- 467: History of the Arts.** 0-3-3. A survey of the arts: furniture; weaving and textiles; tools and weapons; ornament, both domestic and personal; artifacts of daily life such as painting, sculpture, etc. Offered on the Rome campus.
- 468: History of American Art.** 0-3-3. Historical and critical appraisal of art in American from the colonial era to the present.
- 469: History of Italian Art.** 0-3-3. An indepth study of the art located in Rome and Florence.
- 470: Motion Picture.** 6-1-3. Introduction to motion picture techniques and equipment; production of basic sequences.
- 472: History and Aesthetics of Photography.** 6-1-3. A survey of the photographic image from 1839 to the present, with special emphasis on the development of photographic seeing.
- 473: Advanced Studies in Photography.** 6-1-3- (9). Criticism of individual projects and group discussions. Admission by portfolio evaluation and/or faculty recommendation.
- 474: Special Problems in Photography.** 6-1-3- (9). This course is designed for the already advanced student's special interests.
- 490: Sculpture.** 6-1-3- (9). Creative approach to the problems in sculpture with individually directed experiments in the various sculptural processes.
- 510-511-512: Graduate Design.** 6-1-3- (6) each. Studio work varying with the student's project.
- 513-514-515: Master's Project.** 6-1-3- (6) each. Original, independent studio work approved by the Art Graduate Committee as appropriate for presentation as a one-man exhibition of final project.
- 520-521-522: Advanced Studio Problems.** 6-1-3- (6) each.
- 540-541-542: Advanced Crafts.** 6-1-3- (6) each. studio work involving the design and construction of two-dimensional and three-dimensional problems. Choice of media with consent of Art Graduate Committee.
- 550: Photographic Projects.** 6-1-3- (9). Advanced photographic project in field of special interest.
- 564: Graduate Seminar.** 6-1-3. Guided study, discussion, and reading in art related to college level teaching.

- 565: Art History.** 6-1-3- (6) . Guided and/or independent research related to the History of Art.
- 566: Art History.** 6-1-3- (6) . Guided and/or independent research related to contemporary developments in art.
- 567: Graduate Exhibition.** 6-1-3- (6) . Preparation for and installation of graduate exhibition.
- 570: Photographic Projects.** 6-1-3- (9) . Advanced photographic concepts and techniques. Practical and expressive application of photographic processes to the applied and fine arts.
- 571: Photographic Seminar.** 6-1-3. Research paper with supportive audio slide presentation.
- 572: Portfolio.** 6-1-3- (9) . Preparation of a portfolio.
- 573: Photographic Exhibition.** 6-1-3.

ARTS AND SCIENCES

- 435: Undergraduate Research.** A (4 1/2-0-1); B (9 1/2 0-2); C (13 3/4-0-3) . Introduction to methods of research. Preq., consent of the instructor. Credit depends on nature and depth of problem assigned.
- 551: Research and Thesis.** 3 hours credit or multiple thereof. Maximum credit allowed is 6 hours.
- 590: Research and Dissertation.** 3 hours credit or multiples thereof. Maximum credit allowed is 30 hours.

BACTERIOLOGY

- 210: Introduction to Microbiology.** 3-2-3. Basic concepts and laboratory procedures involving microorganisms. F,Sp.
- 212: Survey of Microbiology.** 0-3-3. Fundamental concepts of microorganisms emphasizing techniques used in medically oriented microbiological studies. Su,F,W,Sp.
- 213: General Microbiology Laboratory.** 3-0-1. Preq., Bact 212 or concurrent enrollment. Basic laboratory concepts and procedures involving microorganisms. Su,F,W,Sp.
- 225: Microbiology and the Human Environment.** 0-2-2. Relationship of microbial activities to man's daily life habits. Offered for students not majoring in microbiology. W,Su.
- 306: Determinative Bacteriology.** 3-2-3. Preq., Bacteriology 210 or 212. Nomenclature and recent concepts of bacterial classification. Sp.
- 315: Soil Microbiology.** 3-2-3. Preq., Bacteriology 210 or 212. Microorganisms and microbial activities in soil. F
- 330: Microbial Physiology.** 3-3-4. Preq., Bacteriology 210 or 212 and Chemistry 250. Basic biochemical and physiological activities of microorganisms. W.
- 401: Sanitary Microbiology.** 3-2-3. Preq., Bacteriology 210 or 212. Microbiology of water and sewage. Su,F.
- 405: Food and Dairy Microbiology.** 3-3-4. Preq., Bacteriology 210 or 212. Microorganisms in the food and dairy industries including those that are utilized in dairy and food processing; spoilage and its control. W.
- 406: Pathogenic Bacteriology.** 3-3-4. Preq., Bacteriology 210 or 212. Bacteria pathogenic to man; principles of infection and immunity in man and other animals. Sp.
- 411: Virology.** 3-2-3. Preq., Chemistry 250. Viruses and their relationship to disease in plants, animals, and bacteria. Sp.
- 412: Immunology.** 3-3-4. Preq., Bacteriology 210 or 212 and advanced standing. A qualitative and quantitative study of antigens and antibodies including the chemical basis of antigen-antibody specificity, mechanisms of hypersensitivity, hypersensitive-like states, and immunological diseases. F.
- 413: Petroleum Microbiology.** 3-2-3. Preq., Bacteriology 210 or 212 and Chemistry 250. Micro-organisms of petroleum products and their effects on the petroleum industry.
- 415-418: Seminar.** 0-1-1 each. Preq., consent of the instructor. Selected topics in microbiology and related fields.

- 418: Industrial Microbiology.** 3-3-4. Preq., Bacteriology 210 or 212 and Chemistry 250. Microorganisms of industrial importance, their isolation and identification; stock and starter culture, their maintenance and efficient industrial use; microbial activities in industry.

- 486: Marine Microbiology.** 8-3-4. Preq., Bacteriology 210, 213; Botany 101, 104; Zoology 111, 112. Introduction to the marine and estuarine microbes, especially bacteria and fungi; covers classification, methodology, role in marine ecosystems, biogeochemical cycles and diseases of marine animals. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory. Su

- 505: Advanced Microbial Physiology.** 3-3-4. Preq., Bacteriology 330. An advanced course on the physiology of bacteria, including bacterial growth and variation, cytology, nutrition, respiration, and temperature effects.

- 506: Advanced Microbial Physiology.** 3-3-4. Preq., Bacteriology 505. Intermediate microbial metabolism, regulating control and biosynthesis, varied metabolic pathways.

- 507: Genetics of Microorganisms.** 3-2-3. Preq., Bacteriology 330. Heredity in microorganisms, biochemical genetics; and genetic control of metabolism.

- 512: Advanced Immunology.** 6-1-3. Preq., consent of the instructor. An advanced study of the activities of antigens and antibodies.

- 513: Microbial Degradation.** 6-1-3. Preq., consent of the instructor. Utilization of materials as substrates for microbial activity with emphasis on mechanisms and control measures.

- 514: Advanced Applied Microbiology.** 3-2-3. Preq., consent of the instructor. Survey of the areas of applied microbiology emphasizing project approach.

- 520: Advanced Mycology.** 3-2-3. (Same as Botany 520) . Preq., Bacteriology 350. Collection and identification of fungi; cultural techniques for specialized purposes.

- 525: History of Literature of Microbiology.** 0-3-3. Preq., consent of the instructor. Evolution of the field of microbiology and familiarization with the current literature of the field.

BIOMEDICAL ENGINEERING

- 100: Biomedical Engineering Orientation.** 3-0-1. Development of the field of Biomedical Engineering, including job opportunities, the Biomedical Engineering Curriculum, professionalism and ethics, dimensions and units, Biomedical Engineering analysis and design. W,Sp.

- 200: Biomedical Engineering.** 0-3-3. Science elective for nonengineering students. Emphasis is placed on the basis of interaction between the field of engineering and medicine and on recent developments in the application of biomedical engineering principles.

- 201: Principles of Biomedical Engineering.** 0-3-3. Preq., Chemistry 102, Zoology 111, 112, Biomedical Engineering 100, credit or registration in Mathematics 230. Basic qualitative and quantitative principles of biomedical engineering are presented. The general field of biomedical engineering is reviewed with respective fundamentals emphasized. Su,F,W,Sp.

- 210: Biomedical Engineering Instrumentation.** 3-2-3. Preq., Biomedical Engineering 201. Biomedical instrumentation techniques are presented in an applied manner. Basic circuitry, electronics, and laboratory techniques are explored. F,W,Sp.

- 301: Biomedical Fluid Mechanics and Biomedical Energy Transport.** 0-3-3. Preq., Biomedical Engineering 201. The principles of fluid mechanics and thermal energy exchange in living systems are presented from a quantitative viewpoint. W.

- 305: Rehabilitation Engineering Design.** 0-3-3. Preq., Biomedical Engineering 201 and Math 112, Engineering Mechanics 201, 301. The application of the engineering design process to the rehabilitation problems faced by handicapped persons. F.

- 310: Introduction to Clinical Engineering.** 3-2-3. A foundation course in medical and clinical terminology, medical instrumentation, medical sciences, hospital procedure and medical practice from an engineering perspective. F,Sp.
- 320: Bioenergetics.** 0-3-3. Preq., Mathematics 231 and Physics 201. The student is introduced to the concept of bioenergetics—the thermodynamics of living systems. The laws of thermodynamics are emphasized and applied to biological systems. Sp.
- 401: Biomedical Mass Transport.** 0-3-3. Preq., Biomedical Engineering 301. The transport of liquids, solids and gases between blood flowing through the organs of the body and the surrounding intercellular and intracellular tissue is presented. F.
- 402: Artificial Internal Organs and Biocompatible Materials.** 0-3-3. Preq., Biomedical Engineering 401. Optimum design, construction and operation parameters are presented and quantitative calculations are conducted. The biocompatibility of different materials is explored. W.
- 403: Physiological Control Systems.** 0-3-3. Preq., Mathematics 350. Feedback control mechanisms by which the human body maintains its internal environment are presented qualitatively and quantitatively. Sp.
- 405: Engineering Analysis of Physiological, Biochemical, and Anatomical Systems.** 0-3-3. A study of the basic life sciences with emphasis on biochemical, metabolic, and bioelectric concepts necessary to understand the major mammalian organ systems from an engineering perspective. F.
- 410: Clinical Engineering Internship.** 20-20-6. A practical exposure to the health care delivery system. Application of engineering principles to problems unique to that system. Su,F,W,Sp.
- 425: Advanced Biomedical Instrumentation Systems.** 3-2-3. Preq., Electrical Engineering 213, Biomedical Engineering 210 and Electrical Engineering 354 or consent. Applied Electronics for Biomedical Engineers. The practical aspects of ideal and real operational amplifiers, sequential and combinational digital integrated circuits and microprocessors. W.
- 440: Computer Applications for Biomedical Engineers.** 0-3-3. Preq., Mathematics 111 and 112. The course is designed specifically to train the student in the use of the digital computer for the solution of problems related to Biomedical Engineering.
- 450: Special Topics.** 1-4 semester hours credit. Preq., senior standing and consent of instructor. Problems covering selected topics of current importance or special interest or need. S,F,W,Sp.
- 501: Biotransport Phenomena.** 0-3-3. Chemical Engineering 511 or equivalent. The course is designed specifically for the application of the principles of transport phenomena to biomedical systems. Biomomentum, heat, mass, and electrochemical transport are presented.
- 502: Biotransport Phenomena.** 0-3-3. Preq., Biomedical Engineering 501. A continuation of Biomedical Engineering 501.
- 503: Advanced Bioprocess Identification and Control.** 0-3-3. Preq., Biomedical Engineering 403 or equivalent. Extends classical control theory to multi-variable systems with primary application to bioprocesses and physiological systems. It addresses feedback, and feed-forward control mechanisms by which the human body maintains its internal environment and the pharmaceutical industry utilizes control strategies for bioprocess control.
- 510: Bioinstrumentation.** 3-2-3. Preq., Permission of instructor. Advanced concepts and usage of biomedical instrumentation are reviewed. The actual construction and laboratory use of microelectrodes (PO₂, PCO₂, pH) are used for the investigation of microenvironments and online computer simulation is conducted.
- 520: Design of Artificial Internal Organs.** 0-3-3. Preq., Biomedical Engineering 402 or permission of instructor. Specialized design techniques and the various types of presently available artificial internal organs are reviewed. Recent developments and future needs are discussed.
- 525: Advanced Bioenergetics.** 0-3-3. Preq., BME 320 or permission of instructor. A study of the thermodynamics of irreversible processes in biophysical systems, including thermo-diffusion, thermal osmosis, transport of electrolytes, and models of active transport in tissue.
- 540: System Analysis and Mathematical Modeling of Physiological Phenomena.** 0-3-3. Preq., permission of instructor. The course deals with the analysis of biological systems and the theory behind the development and solution of mathematical models for the description of biological system behavior.
- 545: Biotechnology and Bioprocesses.** 0-3-3. Preq., Biomedical Engineering 301, 401. Introduction to biotechnology and bioprocesses. Microbiology and biochemical reactions are reviewed. Enzyme kinetics, microbial growth transport phenomena, and design of biochemical reactors are studied. Cross-listed with Chemical Engineering 545.
- 550: Special Topics.** 0-3-3. Preq., Permission of instructor. Selected topics dealing with advanced subjects in Biomedical Engineering.

BOTANY

- 101: General Botany.** 0-3-3. An introduction to the fundamental facts and principles of plant life. Su,F,W,Sp.
- 104: General Botany Laboratory.** 3-0-1. Preq., Botany 101 or concurrent enrollment. Basic investigations pertinent to plant life. Su,F,W,Sp.
- 205: Plant Anatomy.** 3-2-3. Preq., Botany 101. A comparative study and interpretation of the internal structure of vascular plants. W.
- 212: Wildlife Conservation and Management.** 0-3-3. An introduction to the wildlife resources of North America and their interrelations with other natural resources. F,W,Sp.
- 221: Taxonomy and Morphology of Early Vascular Plants.** 3-2-3. Preq., Botany 101. Survey of most primitive vascular plants through fern allies. F.
- 222: Taxonomy and Morphology of Ferns and Gymnosperms.** 3-2-3. Preq., Botany 221. Survey of ferns and gymnosperms. W.
- 223: Taxonomy and Morphology of Angiosperms.** 3-2-3. Preq., Botany 222 or consent of the instructor. Survey of the flowering plants. Sp.
- 225: General Science.** 0-3-3. A general course embracing the principles of the biological and physical sciences, designed especially for students who are preparing to become elementary teachers. Su,F,W,Sp.
- 320: Plant Ecology.** 3-2-3. Preq., Botany 220 and Botany 223. A study of plants and plant communities in relation to their environment. Sp.
- 330: Plant Pathology.** 3-2-3. Preq., Botany 101. A study of the nature of plant diseases and disorders. Sp.
- 345: Food Plants of Game Animals.** 3-2-3. Preq., Botany 223. Study of higher forms of land plants that supply food for game animals. F.
- 350: Mycology.** 3-3-4. Preq., Botany 101. Morphology, taxonomy, development and phylogeny of fungi. W.
- 351: Phycology.** 3-3-4. Preq., Botany 101. Morphology, taxonomy, development and phylogeny of algae. Sp.
- 405: Plant Physiology.** 3-2-3. Preq., Botany 101 and Chemistry 130. Study of life processes and functions of plants. F.
- 411: Nature Study.** 0-3-3. Preq., junior standing. A study of flowers, shrubs, trees, birds, and insects. This course is offered especially for elementary teachers. Su.
- 413: Economic Botany.** 0-3-3. Preq., Junior standing. Principal plants of economic importance to man. Su.
- 415-416: Seminar.** 0-1-1 each. Preq., approval of the head of the department. A review of current literature and problems under investigation in plant science.
- 441-442-443: Wildlife Management Internship.** 3 hours credit each, 40 hours per week. Work experience in the use of the equipment, materials, and procedures in wildlife management.

- 485: Marine Botany.** 8-3-4. Preq., Botany 101, 104; Zoology 111, 112. Study of marine and coastal algae and vascular plants including classification, morphology, life cycles and ecology. Five weeks at a Louisiana Universities Marine Consortium coastal lab. Su.
- 505: Advanced Plant Physiology.** 3-2-3. Preq., Botany 220. Principles which underlie interpretation of the physical and metabolic processes of plants.
- 507: Advanced Plant Taxonomy.** 3-2-3. Preq., Botany 223 plus 12 additional hours of botany. Problems of nomenclature and recent concepts of plant classification.
- 508: Field Botany.** 3-2-3. Plant identification and the relation of plants to their environment, offered especially for elementary and secondary teachers.
- 515: Advanced Plant Ecology.** 3-2-3. Preq., Botany 320. An advanced study of vegetation units.
- 520: Advanced Mycology.** 3-2-3. Preq., Botany 350. Collection and identification of fungi; cultural techniques for specialized purposes.
- 525: Advanced Plant Anatomy.** 3-2-3. Preq., Botany 205. An advanced study of the internal structures of vascular plants.
- 535: History and Literature of Botany.** 0-3-3. Preq., consent of the instructor. Special assigned readings and reports.

BUSINESS COMMUNICATION

- 205: Introduction to Business Communication.** 0-2-2. Preq., Office Administration 101 and English 101. Basic business communications, using the typewriter as a tool for document preparation and formatting. Emphasis on major business documents and requiring problem solving. Su, F, W, Sp.
- 305: Communication.** 0-3-3. Preq., Business Communication 205. Theory and nature of communication in organizational settings, interpersonal communication, written business communication, listing, communications. Analysis of business problems and preparation of written/oral solutions. Su, F, W, Sp.
- 520: Directed Research and Readings.** 0-3-3. Research methodology; problems requiring independent organization of research, implementation, outline of solution, and preparation of reports. Emphasis placed on problem-solving for policy-making decisions.

BUSINESS LAW

- 355-356: Legal Environment of Business.** 0-3-3 each. Preq., junior standing. Legal environment of business including torts, government regulations, contracts, agency, sales, negotiable instruments, Uniform Commercial Code, and bankruptcy. Su, F, W, Sp.
- 410: Business Law for Accountants.** 0-3-3. Preq., Business Law 355 and senior standing. A concentrated study of all topical areas of business law. Coverage includes contracts, credit transactions, governmental regulations, business organizations, bankruptcy, and property and related topics. F, Sp.
- 441: Real Property.** 0-3-3. Preq., Business Law 355. Estates in land, titles, deeds, mortgages, leases, land contracts, minerals, easements and successions. F.
- 445: Legal Aspects of Government and Business.** 0-3-3. Preq., Business Law 355 or special permission of the instructor. A study of landmark law cases with special emphasis placed on guideline interpretive decisions of significance to management. W.

CHEMICAL ENGINEERING

- 100: Introduction to Chemical Engineering.** 3-0-1. An introduction to the Chemical Engineering Department, curriculum, and the profession. F, W.
- 202: Chemical Engineering Calculations.** 3-2-3. Preq., Chemistry 102, Credit or registration in Mathematics 230. Problems and recitation in material and heat balances involved in chemical processes. Application of chemical engineering and chemistry to manufacturing in chemical industries. W.
- 254: Laboratory Measurements and Report Writing.** 3-0-1. Preq., Chem. Engr. 202. A study of applied analytical procedures and measurement of process variables in chemical processing and an introduction to technical report writing. W, Sp.
- 301: Unit Operations; Fluid Mechanics.** 0-2-2. Preq., Chem. Engineering 202. Introduction to fluid mechanics including fluid flow in pipes and process equipment and fluid metering. Emphasis on practical quantitative problems. F, Sp.
- 303: Unit Operations; Heat Transfer.** 0-2-2. Preq., Chemical Engineering 301. Introduction to the principles of heat transfer including conduction, convection and radiation. Quantitative problems in exchanger and evaporator design. W.
- 310: Elements of Chemical Engineering Processes.** 0-3-3. Preq., Chemistry 250. Application of principles of chemistry and physics to behavior of materials and their environmental stability. Polymer chemistry and physics. Survey of industrial chemical processes.
- 321: Chemical Engineering Thermodynamics.** 0-2-2. Applications of the laws of thermodynamics to chemical engineering process. F, W, Sp.
- 322: Chemical Engineering Thermodynamics.** 0-2-2. Preq., Chemical Engineering 321. Application of activity, fugacity and chemical equilibria to chemical engineering processes. W, Sp, Su.
- 351: Unit Operations Laboratory I.** 3-0-1. Preq., Chemical Engineering 301. Laboratory work in fluid statics, fluid flow and flow metering. W.
- 352: Unit Operations Laboratory II.** 3-0-1. Preq., Chemical Engineering 303. Laboratory work demonstrating the principles of heat transfer and applications to heat exchanger and evaporator performance.
- 355: Chemical Engineering Modeling.** 0-2-2. Preq., Math 350, Chemical Engineering 301 and computer programming. An introduction to the formulation and numerical solution of mathematical models in chemical engineering.
- 401: Unit Operations; Mass Transfer.** 0-3-3. Preq., Chemical Engineering 301 and 322, Chemistry 311. Quantitative problems to develop the principles and applications of humidification, diffusion, distillation, absorption and extraction. Sp.
- 402: Chemical Kinetics and Reactor Design.** 0-3-3. Preq., senior standing. Homogeneous kinetics, batch reactor analysis by differential and integral analysis, ideal mixed and plug flow reactors, single reaction and multiple reaction analysis, temperature effects. F.
- 403: Transport Phenomena.** 0-3-3. Preq., Chemical Engineering 355, 401. Fundamental principles of momentum, energy, and mass transfer are developed. Emphasis is placed on systems analysis and mathematical description.
- 404: Mixing in Chemical Processes.** 0-3-3. Preq., senior standing, Chemical Engineering 402. Power and Impeller Considerations. Blending, suspension, and dispersion, scale-up, micromixing and macromixing; mass and heat transfer; viscosity; continuous processing; industrial applications.
- 407: Instrumentation and Automatic Process Control.** 3-2-3. Preq., senior standing in engineering. Sum of process instrumentation methods, and the analysis and design of feedback, feed forward, and cascade control systems. F.
- 408: Pulp and Paper Processes.** 0-3-3. Preq., consent of instructor. Introduction to the pulp and paper industry, its terminology, technology and economics. Conversion of various cellulosic materials into unbleached pulp and paper products. F, Sp.
- 409: Computer Control of Real-time Processes.** 0-3-3. Preq., Chemical Engineering 407 or an introductory course in control. An introduction to the Real-time Control of processes using a digital computer including controller algorithms, interfacing hardware, and multitasking Real-time fortran.
- 410: Industrial Waste Treatment.** 0-3-3. Methods of treating and/or disposal of industrial solid, liquid and gaseous wastes. Emphasis placed on fundamental physical, chemical and biological processes. Su, W.

- 412: Applied Problems in Chemical Engineering.** 0-3-3. Preq., junior standing. Methods of handling rate processes, graphical treatment of data, nomography and numerical analysis.
- 414: Industrial Radioactive Isotopes.** 3-2-3. Preq., junior standing. A survey of the industrial applications of radioactive isotopes. Basic concepts in nuclear physics, measurement techniques, radiation safety and instrumentation are presented. F,Sp.
- 420: Introduction to Nuclear Engineering.** 0-3-3. Preq., junior standing. An introduction to nuclear reactor technology. Engineering concepts in reactor design, fuel preparation, economics, shielding, instrumentation, construction and safety are presented. W.
- 421: Reactor Engineering.** 0-3-3. Preq., Chemical Engineering 420. Advanced concepts in nuclear reactor design. Mechanical and nuclear properties of solid and fluid reactor systems. Thermal and structural problems are presented. Sp.
- 424: Seminar.** 0-1-1. Open to seniors. Opportunity is offered for technical discussion, reading of assigned papers and informal presentations. Seminar further serves to bring the student abreast of current engineering thought. W,Sp.
- 432: Chemical Plant Design.** 0-2-2. Preq., senior standing in chemical engineering. Comprehensive problems are assigned, the solution of which enables one to calculate dimensions and capacities of required plant equipment. Computer applications. F.
- 434: Chemical Plant Design.** 3-1-2. Preq., Chemical Engineering 432. Chemical Engineering 432 continued. Su,W,Sp.
- 435: Polymer Engineering.** 0-3-3. Preq., consent of the instructor. Polymer technology and processes including polymer structure, states, and transitions; kinetics of polymerization; molecular weight determination; viscous flow; mechanical properties; polymer degradation; analysis and identification. F,Sp.
- 440: Theoretical Models in Engineering.** 0-3-3. The methodology of constructing, treating, and operating with theoretical models in order to draw objective conclusions concerning physical, chemical, and economic systems and interactions.
- 441: Advanced Engineering Computations.** 0-3-3. Preq., senior standing. Emphasis is placed on the digital, simulation computer solutions of mathematical models in engineering analysis, design, and operation.
- 442: Process Optimization.** 0-3-3. Preq., senior standing. An objective study of the present status of optimization methodology as applied to the chemical process industries. Both deterministic and non-deterministic systems are considered.
- 445: Applications of Personal Computers in Chemical Engineering.** 3-0-1 (3). Application of BASIC language and personal computers to solve typical problems in physical property estimation, unit operations, thermodynamics, chemical reaction engineering and process economics. Su.
- 446: Applications of Digital Simulation Languages.** 3-0-1. Applications of efficient direct mathematical modeling and digital simulation techniques to engineering systems of realistic complexity, CSMP, ACSL, and PACTOLUS languages will be used. Su.
- 447: Computer Control of Real-time Processes.** 3-0-1. Preq., FORTRAN. An introduction to the Real-time control of processes using a digital computer. Course introduces practical digital controller algorithms, computer interfacing hardware, and multitasking. Real-time Fortran. Su.
- 448: Computer Aided Chemical Process Design.** 3-0-1. Chemical processes are designed and optimized using computer simulation of actual processes. Physical property correlation and unit operations are emphasized. Su.
- 449: Optimization in Chemical Engineering Using Computers.** 3-0-1. Numerical optimization techniques are applied to unit operations, unit processes and complete chemical plants. Regression techniques are used to develop objective functions. Su.
- 450: Special Problems.** 1-4 semester hours credit. Preq., senior standing and consent of instructor. Problems covering selected topics of current importance or special interest or need. S,F,W,Sp.
- 451: Unit Operations Laboratory III.** 6-0-2. Preq., Chemical Engineering 401. Laboratory work in humidification, drying, distillation, absorption, extraction, and kinetics. F,W.
- 452: Special Projects Laboratory.** 3-0-1. Preq., senior standing in Chemical Engineering. Selected comprehensive problems. Study and/or laboratory development of: industrial unit operations; new chemical processes; improvement of established processes; economic evaluations. Theoretical studies. Su,W,Sp.
- 470: Sanitary Engineering Processes.** 2-0-2. Theory and techniques of physical and chemical processes used for water quality control. Topics considered include aeration, coagulation, flocculation, sedimentation, ion exchange, filtration, sorption, and chlorination. W.
- 501: Advanced Unit Operation.** 0-3-3. Design calculations applicable to various unit operations including drying, humidification, absorption, adsorption, distillation, heat exchangers, ion exchange, cooling towers and filtration.
- 503: Advanced Heat Transfer.** 0-3-3. Radiation, conduction, and convection, condensation and fluid film correlations from fundamental laws of energy as applied to chemical engineering problems.
- 504: Advanced Chemical Engineering Kinetics.** 0-3-3. Homogeneous reactions. Catalytic reactions. Mass and heat transfer in catalytic beds. Catalytic reactor design. Uncatalyzed heterogeneous reactions.
- 505: Petroleum Refining.** 0-3-3. A study of the processing of petroleum. Polymerization, catalytic cracking, reforming, and other unit processes. Unit operations as applied to petroleum refining. Economics of refining operations.
- 509: Theoretical and Empirical Mass Transfer.** 0-3-3. The theory and empiricism of mass transfer as applied to equipment and process design and operation.
- 511: Transport Phenomena.** 0-3-3. Preq., Differential Equations. A course presenting a theoretical approach to the subjects of momentum transport, energy transport, and mass transport.
- 513: Transport Phenomena.** 0-3-3. Preq., Chemical Engineering 511. A course in which advanced concepts on momentum, energy, and mass transport are explored. Emphasis is placed on unsteady state behavior, turbulence, and recent developments in the literature.
- 515: Process Dynamics.** 0-3-3. Preq., Differential Equations. A course emphasizing the dynamic behavior of processes and processing equipment.
- 516: Advanced Process Dynamics and Automatic Control.** 0-3-3. Preq., Chemical Engineering 515. Advanced topics concerning stability, dynamics and control of complex processes are presented. Particular emphasis will be given to distributed parameter and non-linear systems. Special projects may be assigned.
- 522: Advanced Thermodynamics.** 0-3-3. The relations of thermodynamic properties are developed. Problems on the expansion and compression of non-gases, liquefaction, low temperature separation are studied.
- 523: Convective Boiling and Condensation.** 0-3-3. Theory and experimental background are used to describe boiling and condensation phenomena in forced convection situations.
- 524-525-526: Seminar.** 0-1-1 each. Surveys, investigations, and discussions of current problems in chemical engineering.
- 535: Polymer Processing.** 0-3-3. Preq., Chemical Engr. 435. The operations necessary to increase the utility of polymeric materials are studied. Background study of non-newtonian rheology, simple fluid-flow modelling, and plasticating and non-plasticating extrusion allow for a practical approach to various polymer processing operations. Calendering, coating, fiber spinning, film blowing, injection molding, and mixing are some of the processes that are reviewed.
- 545: Biochemical Engineering.** 0-3-3. Preq., Chemical Engr. 402. Introduction to biotechnology and bioprocesses. Microbiology

and biochemical processes are reviewed. Enzyme kinetics, microbial growth transport phenomena, and design of biochemical reactors are studied. Cross-listed with Biomedical Engineering 545.

550: Special Problems. 1-4 semester hours. Preq., consent of instructor. Selected topics dealing with advanced problems in chemical engineering and design of equipment. The problems and projects will be treated by current methods used in professional practice.

603: Multi-Phase Flow. 0-3-3. Development of multi-phase flow theory including gas-liquid, gas-solid, liquid-solid. Results are applied to pressure drop, flashing discharge, fluidization, and flow regime calculations.

CHEMISTRY

100: General Chemistry. 0-2-2. Coreq., Math 111. Fundamental principles of chemistry. F,W,Sp,Su.

101: General Chemistry. 0-2-2. Coreq., or Preq., Chemistry 101, 103. Continuation of Chemistry 100. F,W,Sp,Su.

102: General Chemistry. 0-2-2. Coreq., or Preq., Chemistry 101, 104. Continuation of Chemistry 101. F,W,Sp,Su.

103: General Chemistry Laboratory. 4 1/4-0-1. Coreq., Chemistry 101. Laboratory practice in general chemistry. Su,F,W,Sp.

104: Qualitative Inorganic Analysis. 4 1/4-0-1. Coreq., Chemistry 102. Continuation of Chemistry 103. Su,F,W,Sp.

111: Cultural Chemistry. 0-3-3. A non-mathematical introductory course in chemistry for non-science majors.

130: An Introduction to Inorganic Chemistry. 0-3-3. Topics covered will include scientific units, states of matter, the electronic structure of atoms, the chemical bond, solutions, reaction kinetics, acid-base theory, and buffers. F,Sp.

131: An Introduction to Organic Compounds. 0-3-3. Preq., Chemistry 130 or 102. An introductory study of hydrocarbons and their derivatives. Not to be used as a prerequisite for advanced chemistry courses. W,Su.

132: An Introduction to Biochemistry. 4-3-4. Preq., Chemistry 131. Protein structure and function; metabolism of sugars and lipids; molecular biology of the gene. Not to be used as a prerequisite for advanced chemistry courses. Sp,Su.

190: General Chemistry for Secondary Education. 4-3-4. Fundamental principles of chemistry to include atomic structure, stoichiometry, bonding, nomenclature and gas laws. For education majors only. Su.

191: General Chemistry for Secondary Education. 4-3-4. Preq., Chemistry 190. Topics covered will include thermodynamics, kinetics, electrolytes, acid/base theory, equilibrium and PH. For education majors only. Su.

205: Quantitative Analysis. 4 1/4-3-4. Preq., Chemistry 102. Theory and practice of analytical Chemistry. Sp.

212: Radiochemistry. 4 1/4-2-3. Preq., Chemistry 102 or 122. Fundamental principles of radiochemistry. Sp.

250: Organic Chemistry. 0-2-2. Preq., Chemistry 102 or 122. Introduction to organic chemistry with emphasis on structure and reactivity. F,Sp.

251: Organic Chemistry. 0-2-2. Preq., Chemistry 250; coreq., Chemistry 253. Continuation of Chemistry 250 with emphasis on aliphatic compounds and reaction mechanisms. Su,W.

252: Organic Chemistry. 0-2-2. Preq., Chemistry 251; coreq., Chemistry 254. Continuation of Chemistry 251 with emphasis on aromatic compounds and reaction mechanisms. Su,Sp.

253: Organic Chemistry Laboratory. 4 1/4-0-1. Preq., Chemistry 102 or 122; coreq., Chemistry 251. Basic techniques in organic chemistry. Su,W.

254: Organic Chemistry Laboratory. 4 1/4-0-1. Preq., Chemistry 250 and 253; coreq., Chemistry 252. Introduction to organic syntheses. Su,Sp.

311: Physical Chemistry. 0-3-3. Preq., Chemistry 102 and 252, Mathematics 231 and Physics 202 or 209. Basic theories of

chemistry with emphasis on the atomic-molecular theory and thermodynamics. F,Sp.

312: Physical Chemistry. 0-3-3. Preq., Chemistry 311. Basic theories of chemistry with emphasis on chemical thermodynamics, chemical kinetics, and electrochemistry. W.

313: Physical Chemistry Laboratory. 4 1/4-0-1. Coreq., Chemistry 311. Laboratory experiments in physical chemistry. Sp,F.

314: Physical Chemistry Laboratory. 4 1/4-0-1. Preq., Chemistry 311 and 313 and simultaneous registration in Chemistry 312. Continuation of Chemistry 313. W.

351: General Biochemistry. 0-3-3. Preq., Chemistry 252, 254. The chemistry of biologically important compounds including fats, carbohydrates, proteins, enzymes, vitamins, and hormones. F.

352: General Biochemistry. 0-3-3. Preq., Chemistry 351. Intermediary metabolism and molecular biology of the gene. W.

353: Biochemistry Laboratory. 4 1/4-0-1. Coreq., Chemistry 351. Techniques applicable to current biochemistry with emphasis on clinical procedures. F.

354: Biochemistry Laboratory. 4 1/4-0-1. Preq., Chemistry 351 and Chemistry 353. Emphasis on techniques used in modern clinical chemistry laboratories with examples of various procedures used for quantitation of enzymes in biological fluids kinetic, ultraviolet, spectrophotometric, etc. Sp.

381: Intermediate Organic Chemistry. 4 1/2-2-3. Preq., Chemistry 252 and 254. A more advanced study of organic syntheses and organic qualitative analysis. Sp.

409: Advanced Organic Chemistry. 0-3-3. Preq., Chemistry 252, 381 and 312. A study of theoretical organic chemistry with emphasis on reaction mechanisms. F.

412: Biophysical Chemistry. 0-3-3. Preq., Chemistry 311 and 352 or equivalent. Course topics include denaturation and multiple equilibria, hydrodynamics, and spectroscopy of macromolecules. W, odd years.

420: Chemical Thermodynamics. 0-3-3. Preq., Chemistry 312. An introduction to statistical thermodynamics.

424: Advanced Physical Chemistry. 0-3-3. Chemistry 312 or Physics 410 and Mathematics 350. A continuation of Chemistry 311-312, including the study of structure of atoms and molecules, and introduction to statistics, and selected topics in modern physical chemistry. F.

461: Clinical Biochemistry. 0-3-3. Preq., Chemistry 352. A survey of metabolic chemistry emphasizing research techniques, terminology, methods of disease diagnosis and management, and other advances related to clinical biochemistry. F, odd years.

462: Toxicology. 0-3-3. Preq., Chemistry 352. A study of the harmful actions of chemicals on biological tissues including the identification and management of toxic effects. W, even years.

466: Analytical Chemistry. 8 1/2-2-4. Preq., Chemistry 312. Theory and practice of optical methods of analysis, advanced electrical techniques, and modern separation methods. Sp.

481: Advanced Inorganic Chemistry. 0-3-3. Preq., Chemistry 252, 312. An advanced study of the periodic classification of elements, their reactions, and other inorganic principles. Sp.

484: Marine Chemistry. 8-3-4. Preq., Chemistry 101, 102, 103, 104, 250, 251, 252, 253, 354. Chemical composition of oceans; chemical, biological and geological processes. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory. Su.

490: Chemistry Seminar. 0-1-1-3. Preq., Senior or graduate standing. Required of senior chemistry majors and graduate students. Supervised organization and presentation of topics from the chemical literature. F,W,Sp.

501: Physical Organic Chemistry. 0-3-3. Preq., Chemistry 409. A study of the mechanisms of reactions and the methods used in their investigation.

502: Selected Topics in Organic Chemistry. 0-3-3 (6). Preq., Chemistry 252, 312. Areas covered will vary and may include organic spectroscopy and reaction mechanisms.

- 504: Chemistry of Heterocyclic Compounds.** 0-3-3. Preq., Chemistry 252.
- 520: Molecular Spectroscopy.** 0-3-3. Preq., Physics 202 plus Physics 430, Chemistry 252, 312. The relationship between molecular spectra and molecular structure. Use is made of quantum mechanics and group theory.
- 523: Special Topics in Physical Chemistry.** 0-3-3. Preq., Chemistry 312. Topics will vary and will include kinetic theory of gases, molecular structure, phase rule, photochemistry, nuclear chemistry, chemical kinetics, or statistical thermodynamics.
- 524: Quantum Chemistry.** 0-3-3. Preq., Chemistry 312 or Physics 430. Physical and chemical applications of quantum theory.
- 554: Chemistry of Microorganisms.** 0-3-3. Preq., Chemistry 352 or 252. Composition, metabolism, and nutrition of microorganisms with particular emphasis on antibiotics, microbiological assays and immunology.
- 555: Special Topics in Biochemistry.** 0-3-3 (9). Preq., Chemistry 352. Areas covered will vary and may include toxicology, clinical biochemistry, biophysical chemistry and clinical internship.
- 556: Protein Chemistry.** 0-3-3. Preq., Chemistry 351. The chemical nature and physiology of both structural and metabolic proteins. F, even years.
- 563: Advanced Analytical Chemistry.** 0-3-3. Preq., Chemistry 465, 466, and 312. Theoretical aspects of the optical, chemical and separation techniques of analytical chemistry.
- 584: Chemistry of Coordination Compounds.** 0-3-3. Preq., Chemistry 481. A study of the structure, preparation, and properties of coordination compounds.
- 585: Inorganic Preparations.** 8 1/2-0-2. Preq., Chemistry 481 or concurrent enrollment. A correlation between inorganic principles and theory and laboratory techniques for the preparation of inorganic compounds.

CIVIL ENGINEERING

- 100: Introduction to Civil Engineering.** 3-0-1. A survey of topics to introduce the student to the profession, the department and the curriculum. F.
- 250: Surveying Fundamentals.** 2 Sem. Hrs., meets 8 to 5 daily first 2 weeks, Summer only. (Not open to students who have credit in Civil Engineering 254.) Preq., Mathematics 112. Introduction to surveying principles and use of surveying equipment. Su.
- 251: Land Surveying.** 4 Sem. hrs., meets 8 to 5 daily for 4 weeks following Civil Engineering 250. Preq., Civil Engineering 250. Topographical surveys, mapping, traversing, public land surveys, computer methods, construction surveying, practical application problem. Su.
- 252: Intermediate Surveying.** 3 Sem. hrs., meets 8 to 5 daily using an integrated schedule with CE 253 for 6 weeks following Civil Engineering 251. Preq., Civil Engineering 251 and registration in Civil Engineering 252. State Plane coordinate systems, legal descriptions, curves and earthwork, practical application problem. Su.
- 253: High Precision Surveying.** 3 semester hours, meets 8 hours daily using an integrated schedule with CE 252 for 6 weeks following Civil Engineering 251. Preq., Civil Engineering 251 and registration in Civil Engineering 252. Astronomical observations, triangulation and trilateration, EDM methods, precise traversing and leveling, practical application problem. Su.
- 254: Plane Surveying.** 8-2-4. Preq., Mathematics 112. Theory, field measurements, and computation, and error analysis associated with land, traverse, and topographic surveys. Su.
- 258: Drawing for Surveyors.** 6-0-2. Preq., Technical Drafting 101 or Engineering 151. Engineering drawings for Civil Engineers and Land Surveyors. Drawings of maps, topographic conventions, plans and profiles.
- 300: The Civil Engineering Profession.** 0-3-3. Preq., Engineering Mechanics 311. The civil engineering profession and its effect on society. History and heritage, current professional practices and techniques, concepts and challenges for the future. Sp.
- 302: Engineering Materials.** 4-2-3. Preq., English 303 and Engineering Mechanics 311. Mechanical behavior of engineering materials, determination of strength and other properties of materials, conventional and true stress-strain, failure mechanisms. F.
- 304: Remote Sensing.** 4-1-2. Preq., Mathematics 112. Basic introduction to remote sensing. Measurements and mapping from aerial photographs. Photo interpretation. Height determination by parallax. Sp.
- 310: Hydrology.** 0-2-2. Preq., Engineering Mechanics 321. The occurrence and movement of water on and below the surface of the earth. Precipitation, runoff and stream flow; infiltration and ground water. W.
- 314: Environmental Engineering.** 3-3-4. Preq., English 303 and Civil Engineering 391 and Chem. 104. Introduction to principles of water and waste water treatment, air pollution and public health engineering. Sp.
- 324: Soils and Foundation Engineering.** 4-2-3. Preq., English 303, Engineering Mechanics 311 and Geology 317. Introduction to soil mechanics and its application in civil engineering. The exploration and soil testing programs required for the design of various engineering structures. F.
- 326: Elements of Building Systems.** 0-3-3. Preq., Physics 202 or 210. Study of the application of the engineering sciences to air conditioning comfort, acoustical control, plumbing demands, illumination design and vertical transportation in buildings.
- 332: Transportation Engineering.** 0-3-3. Preq., Engineering Mechanics 211. Introduction to transportation facilities; urban transportation planning; land, air, and water transportation facilities; future developments in transportation. W.
- 346: Theory of Simple Structures.** 0-3-3. Preq., Engineering Mechanics 311 and Engineering 102. Shear and bending moment diagrams, truss analysis, influence lines, moving loads, three-moment equation, determinates, computer methods. Sp.
- 391: Hydraulics.** 4-1-2. Preq., Engineering Mechanics 321, English 303. Elements of flow in open channels and in pipelines; general fluid mechanics laboratory; fluid measurements; and hydraulic models. W.
- 400: City Planning.** 0-3-3. Preq., junior standing. Objectives and main elements of a master plan for an urban community. Special physical, social, legal, economic and administrative problems of villages and metropolitan areas.
- 413: Water Resources Design.** 3-2-3. Preq., Civil Engineering 310 and 314. Design of water supply and pollution control facilities.
- 415: Water Resources Practices.** 0-3-3. Preq., Civil Engineering 314. Introduction to water resources management, natural man modified resource systems. Water management legislation and introduction to water resources economic analysis.
- 416: Hydraulic Facilities Design.** 0-3-3. Preq., Civil Engineering 391. Basic concepts of open channel flow. Computation of uniform and non-uniform flow. Hydraulic design of spillways, stilling basins, canals, transitions, culverts, and bends.
- 417: Groundwater Hydrology.** 0-3-3. Preq., Civil Engineering 310. Groundwater occurrence, movement and quality, well hydraulics, basin development, and model studies.
- 424: Seminar.** 0-1-1. Preq., candidate for graduation. Opportunity is offered for discussion, reading of assigned papers, informal talks by instructors and professional engineers, debates on matters of current interest. F, W, Sp.
- 425: Traffic Engineering.** 0-3-3. Preq., Civil Engineering 332. Traffic characteristics, vehicle operating characteristics, traffic control, and design of traffic facilities. Basic traffic studies, capacity, signing and signalization, speed regulation and parking.
- 427: Design of Highway and Airport Pavements.** 0-3-3. Preq., Civil Engineering 332. Flexible and rigid pavement types. Factors affecting stresses and strains in pavement layers. Design criteria and structural design methods for highway and airport pavements.

- 433: Land Surveying.** 0-3-3. Legal principles and terms related to the establishment of real property boundaries. Property descriptions and layout, mineral claims. W.
- 436: Construction Equipment and Methods.** 0-3-3. Preq., Engineering 401 and Civil Engineering 324 or Civil Technology 475. Study of economics and functional applications of construction equipment. Operation characteristics are identified for selected equipment items, and are applied to typical construction situations. Sp.
- 437: Contracts and Specifications.** 0-2-2. Preq., Junior standing or consent of instructor. Legal documents of construction contracts. W.
- 438: Estimating.** 0-3-3. Preq., senior standing or consent of instructor. Types of estimates. Material takeoff from blueprints and specifications. Detailed estimates of labor and materials. Approximate estimates. W.
- 439: Planning and Scheduling Engineering Projects.** 0-2-2. Preq., Engineering 401, senior standing or consent of instructor. A study of methods used for planning, estimating, and controlling engineering projects.
- 440: Foundation Engineering.** 0-3-3. Preq., Civil Engineering 324 or consent of instructor. Theory and applications in foundation engineering design; application of soil mechanics.
- 441: Advanced Geotechnical Engineering Problems.** 0-3-3. Preq., Civil Engineering 324. Theory and applications of site and soil improvements; design and construction of underground facilities; tunneling and tunneling machines.
- 443: Analysis of Continuous Structures.** 0-3-3. Preq., Civil Engineering 346. Slope-deflection, moment distribution plastic design, matrix applications, STRUDL computer language.
- 444: Reinforced Concrete.** 0-3-3. Preq., Civil Engineering 346. Principles underlying the design of integral parts of reinforced concrete structures: beams, girders, slabs, columns, retaining walls using the strength design method. W.
- 446: Indeterminate Structures.** 0-3-3. Preq., Civil Engineering 443, or consent of instructor. Analysis of indeterminate structures. Conjugate beam, virtual work, Castiglione's method, influence lines by Muller-Breslau. Truss deflections by the Williot-Mohr method. Use of matrices in structural analysis.
- 447: Prestressed Concrete Structures.** 0-3-3. Preq., Civil Engineering 444. Materials and prestressing systems; analysis and design of sections for flexure, shear, bond, and bearing; beam deflections and layout. Continuous beams.
- 448: Computer Methods in Structural Analysis.** 0-3-3. Preq., Civil Engineering 443 or consent of instructor. Matrix formulation of structural analysis problems. Solution of problems using digital and analog computers.
- 449: Computer Methods in Foundation Engineering.** 0-3-3. Preq., Civil Engineering 440. Computer solutions for spread and combined footings, mat foundations, retaining walls and pile foundations.
- 450: Special Problems.** 1-4 hours credit. Preq., senior standing and consent of instructor. Planning, organization, and solution of problems in Civil Engineering. Su, F, W, Sp.
- 465: Structural Design and Theory.** 0-3-3. Preq., Civil Engineering 346. Design of members and connections in metals and timber.
- 501: Frame Analysis.** 0-3-3. Preq., Civil Engineering 443. Single and multi-story frames by moment distribution, slope deflection and column analogy methods. Frames and beams with variable cross-section. Secondary stresses in trusses. Dimensional analysis and theory of models.
- 502: Computer Methods of Structural Analysis.** 0-3-3. Preq., Civil Engineering 448. Matrix formation of structural analysis problems. Static and dynamic analysis of structures using digital computers. Applied numerical methods. The finite element method.
- 503: Advanced Reinforced Concrete.** 0-3-3. Preq., Civil Engineering 444. Advanced reinforced concrete theory, including such topics as constitutive properties, combined stresses, curvature-ductility, torsion.
- 505: Plastic Analysis and Design.** 0-3-3. Preq., Civil Engineering 465. Analysis of steel structure behavior beyond the elastic limit. Concept of design for ultimate load and the use of load factors. Analysis and design of component parts of frames. Methods of predicting strength and deformation behavior of structures loaded in the plastic range. Bracing and connecting requirements for frames.
- 506: Numerical Methods in Structural Engineering.** 0-3-3. Preq., Civil Engr. 448. Methods of solution of algebraic and differential formulation of equations as applied to structural engineering analysis.
- 507: Structural Systems.** 0-3-3. Preq., Civil Engr. 444, 485. Comparison of designs in steel, timber, and reinforced concrete including low and high-rise buildings, bridges, and other structures.
- 508: Finite Element Analysis.** 0-3-3. Preq., Civil Engr. 448. Linear and nonlinear finite element analysis of continua and discretized structures; use of finite element computer programs to solve typical structural problems.
- 509: Dynamic Analysis of Structures.** 0-3-3. Preq., Math 350. Analysis of structures (SDOF and MDOF) under wind, wave, earthquake and impact forces.
- 510: Advanced Soil Mechanics.** 0-3-3. Preq., Civil Engineering 324. Evaluation of subsoil conditions, theory of consolidation and bearing capacity of soils; selection application and design of foundation elements of structures.
- 511: Foundation Analysis Techniques.** 0-3-3. Preq., Civil Engineering 440. Practical approach to analysis of existing foundation problems and development of rehabilitation schemes. Special case studies.
- 512: Design of Deep Foundations.** 0-3-3. Preq., Civil Engr. 440. Analysis and design of pile foundations, drilled shafts, piers and sheeting support systems.
- 515: Analysis Techniques for Pavement Designs.** 0-3-3. Preq., Civil Engr. 302, 324. Introduction to flexible and rigid pavements. Techniques for stress analysis, environmental considerations, load equivalences, material characterization and construction of pavements.
- 517: Pavement Design Procedures.** 0-3-3. Preq., Civil Engr. 427, 515. Design of flexible and rigid pavements for highways and airports. Structural section requirements and advanced mechanistic designs.
- 518: Pavement Design Strategies.** 0-3-3. Preq., Civil Engr. 515. Selection of structural section of pavements based on life cycle costs, maintenance and accessibility. Condition surveys and data collection.
- 526: Advanced Hydrology.** 0-2-2. Preq., Civil Engineering 310 or consent of instructor. Conceptual hydrograph models. The hydrology of spillway design, study of model water sheds. The hydrologic design of a small reservoir will be a required project.
- 527: Statistical Methods in Hydrology.** 0-3-3. Preq., Civil Engr. 310. Frequency analysis, extreme value distribution, error analysis, and multiple regression analysis associated with making engineering decisions using hydrologic data.
- 528: Computer Applications in Hydrology.** 0-3-3. Preq., Civil Engr. 417, Math 350. Analytical and numerical modeling techniques for surface and groundwater hydrology and hydraulics. Development of models and application of existing models using digital computers.
- 529: Water Quality Hydrology.** 0-3-3. Preq., Civil Engr. 310. Advanced study of water quality aspects of surface and subsurface hydrology.
- 530: Water Quality Improvement.** 3-2-3. Preq., Civil Engineering 314 or consent of instructor. Stream self-purification processes. Pollution abatement methods. Industrial waste surveys. Principles of treatment for domestic and industrial wastewaters.
- 535: Water Supply Systems.** 3-2-3. Preq., Civil Engineering 413. Advanced problems in design of water supply, treatment and distribution system.

- 536: Wastewater Disposal Systems.** 3-2-3. Preq., Civil Engineering 413. Advanced problems in design of domestic and industrial waste treatment systems.
- 542: Hydraulic Engineering.** 0-3-3. Preq., Civil Engineering 391. Types and classes of pumps. Characteristics and selection of pumps, turbines, pump-pipe systems, including pump curves in parallel and series, and parallel piping systems. Pressure waves and pressure relief systems, cavitation.
- 543: Pipe Network Analysis.** 4-2-3. Preq., Civil Engr. 391. Introduction to pipe networks. Methods and applications of pipe network analysis: Hardy Cross, Linear Theory and Newton-Raphson.
- 544: Sewer Design and Construction.** 4-2-3. Preq., Civil Engr 391. Hydraulic design and construction of storm and sanitary sewers, combined sewers. Sewer appurtenances. Construction materials and methods.
- 550: Special Problems.** 1-4 hours credit. Advanced problems in civil engineering will be assigned according to the ability and requirements of the student. An opportunity will be afforded to plan, organize, and complete solutions in problems of considerable magnitude with a view toward developing confidence and self reliance.
- 555: Research and Communications.** 0-3-3. Preq., 12 s.h. of graduate work. Oral and written communication of literature search.
- 560: Transportation Systems Planning.** 4-2-3. Preq., Civil Engr. 332. A study of transportation systems as they affect travel behavior of a populace and the location of economic activities.
- 575: Multi-Protection Design.** 0-3-3. Preq., Civil Engr. 314, 443. Design of structures to lessen the effects of disasters and hazards such as environmental contamination, flood, earthquake, fire, wind, and blast.
- 576: Offshore and Coastal Structures.** 0-3-3. Design and analysis of structures in a marine environment. Special problems and solutions associated with structures in deep water.

CIVIL TECHNOLOGY

- 102: Introduction to Engineering Technology.** 3-0-1. An introductory study of the characteristics and "tools" of the field of engineering technology: engineering calculations, visual presentation of data, technical reporting and the fundamental steps of engineering design.F.
- 210: Basic Hydraulics.** 4-2-3. Preq., Engineering Mechanics 206. Physical phenomena of hydraulics with application of the fundamental laws and empirical formulae. Pressure forces on submerged areas, buoyancy, flow in closed conduits and open channels and fluid measurements. F.
- 257: Practical Surveying.** Three semester hours. Preq., Civil Engineering 253. An on-the-job training program where the student is employed by a registered surveyor for a minimum period of 300 working hours in a program of work approved by the department head. Open to Land Surveying Technology students only. F.
- 273: Construction Surveying.** 8-1-3. Preq., Math 112. Use of surveying equipment for layout of construction projects. Not open to students who have had CE 254.F.
- 343: Construction Management.** 0-3-3. Preq., Engineering 401 and Statistics 200. Coreq., Civil Technology 345. A study of all aspects of construction management which contribute directly to the successful accomplishment of a project. Organization, planning and scheduling, with emphasis on CPM and PERT.
- 345: Construction Blueprint Reading.** 3-0-1. Coreq., with Civil Technology 343. Blueprints for heavy timber, steel, and reinforced concrete construction are presented. Emphasis is on extraction of information necessary for the planning of the construction process.F.
- 372: Structural Analysis.** 0-3-3. Preq., Engineering Mechanics 207. Theory and practice of the analysis and design of structures and their components. Not open to civil engineering majors. W.
- 373: Construction Materials.** 4-0-1. Preq., Engr. Mech. 207. Study and practice of methods for determination of strength and other properties of construction materials. Not open to civil engineering majors. W.
- 471: Reinforced Concrete and Foundation Design.** 0-3-3. Preq., Civil Tech. 372. Analysis and design of reinforced concrete structures, slabs, footings, caissons and pile foundations. Not open to civil engineering majors. F.
- 473: Design of Structures.** 3-2-3. Preq., Civil Tech 372. Design of elementary structures in timber and steel.W.
- 475: Soils in Construction.** 3-2-3. Preq., Civil Technology 210 and Engineering Mechanics 207. The nature of soils, earthwork in construction and soils testing methods.

CLINICAL LABORATORY SCIENCE

- 110: Orientation in Medical Technology.** 0-1-1. An introduction to the field of medical technology; professional ethics, a brief survey of laboratory procedures, and discussions concerning career opportunities. F.
- 242: Histological Sectioning.** 8 1/2-0-2. Preq., Zoology 115 or equivalent. Methods of preparing tissues for microscopic examination.
- 245: Clinical Analysis.** 4 1/4-2-3. Preq., Zoology 115 and Chemistry 102. A study of the qualitative and quantitative laboratory methods used to demonstrate the physiological state of the body.
- 341: Hematology.** 4 1/2-2-3. Preq., Zoology 115. Quantitative and qualitative methods for determining the condition of cellular blood and a study of its histology, morphology and physiology.
- 346: Medical X-Ray Technology.** 4 1/2-1-2. Preq., Zoology 111 and 112. Methods of obtaining routine radiographs, stressing proper positions and dark room techniques.
- 351: Medical Technology Problems.** 4 1/4-0-1. Preq., junior standing or consent of instructor. An introduction to the principles of research.
- 352: Medical Technology Problems.** 8 1/2-0-2. Preq., junior standing and permission of instructor. An introduction to the principles of research.
- 353: Medical Technology Problems.** 12 3/4-0-3. Preq., junior standing and permission of instructor. An introduction to the principles of research.
- 448: Serology.** 4 1/4-2-3. Preq., Zoology 15. A study of the body defenses against viral and bacterial diseases and serodiagnostic procedures based on the antigen-antibody reactions.
- 449: Biological and Clinical Applications of Radioisotopes.** 8 1/2-0-2. Preq., Chemistry 212 and Zoology 202. Intensive training in the use of specialized equipment for measuring ionizing radiations used in biological systems.
- 450: Clinical Pathology.** 0-3-3. Preq., permission of the instructor. A case history approach is taken in the correlation of laboratory data with clinical observation to diagnose disease.
- 451: Laboratory Studies in Clinical Pathology.** 4 1/4-0-1. Preq., or Coreq., Clinical Laboratory Science 450. Student application of modern laboratory techniques used in the clinical pathology laboratory with emphasis on clinical hematology, clinical chemistry, urodynamics and clinical immunology.
- 452: Medical Technology Seminar.** 0-1-1. Preq., junior standing and permission of instructor. Medical technology ethics, trends, state requirements, new developments in the field, and student reports.
- 453: Medical Technology Internship.** 8 semester hours; 40 contact hours per week. Preq., consent of instructor. Includes lectures and laboratories in the branches of medical technology. Credit will not be given until Clinical Laboratory Science 454, 455 and 456 are completed. Su,F,W,Sp.
- 454: Medical Technology Internship.** 8 semester hours. 40 contact hours per week. Preq., consent of instructor. Includes lectures and laboratories in the branches of medical technology. Credit will not be given until Clinical Lab Science 454, 455 and 456 are completed. Su,F,W,Sp.

- 455: Medical Technology Internship.** 8 semester hours, 40 contact hours per week. Preq., consent of instructor. Includes lectures and laboratories in the branches of medical technology. Credit will not be given until Clinical Lab Science 454, 455 and 456 are complete. Su,F,W,Sp.
- 456: Medical Technology Internship.** 6 semester hours; 40 contact hours per week. Preq., consent of instructor. Includes lectures and laboratories in the branches of medical technology. Credit will be given on completion of this course for Clinical Lab Science 453, 454, 455. Su, F, W, Sp.
- 460: Clinical Hematology.** 0-2-2. Preq., consent of instructor. Advanced concepts in the use and interpretation of hematological and coagulation procedures and data.
- 461: Clinical Hematology Laboratory.** 17-0-4. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of hematological and coagulation procedures.
- 462: Clinical Serology and Immunology.** 0-1-1. Preq., consent of instructor. Advanced concepts in the use and interpretation of serological and immunological procedures and data.
- 463: Clinical Serology and Immunology Laboratory.** 6.3-0-2. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of serological and immunological procedures.
- 464: Clinical Bacteriology.** 0-3-3. Preq., consent of the instructor. Advanced concepts in the use and interpretation of medical bacteriological procedures and data.
- 465: Clinical Bacteriology Laboratory.** 12.75-0-3. Preq., consent of instructor. Practical instruction and laboratory practice in bacterial isolation, identification, and antimicrobial sensitivity studies.
- 466: Clinical Immunohematology.** 0-1-1. An advanced study of the principles of immunohematology necessary to provide a patient with a safe blood transfusion.
- 467: Clinical Immunohematology Laboratory.** 12.75-0-3. Preq., consent of instructor. Practical instruction and laboratory practice in immunohematological procedures utilized in a hospital blood bank.
- 468: Clinical Chemistry.** 0-3-3. Preq., consent of instructor. Advanced concepts in the use and interpretation of clinical chemistry procedures and data.
- 469: Manual Clinical Chemistry Lab.** 15-0-3. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of manual clinical chemistry procedures.
- 470: Special Clinical Chemistry Laboratory.** 8.5-0-2. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of special clinical chemistry procedures.
- 471: Automated Clinical Chemistry Lab.** 8.5-0-2. Preq., consent of instructor. Practical instruction and lab practices in the performance of automated clinical chemistry procedures.
- 472: Clinical Chemistry Toxicology Laboratory.** 4.25-0-1. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of toxicological procedures.
- 473: Clinical Chemistry Radioimmunoassay Laboratory.** 4.25-0-1. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of radioimmunoassay procedures.
- 474: Clinical Urinalysis.** 0-1-1. Preq., consent of instructor. Advanced concepts in the use and interpretation of urinalysis procedures and data.
- 475: Clinical Urinalysis Laboratory.** 4.25-0-1. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of urinalysis procedures.
- 476: Clinical Parasitology, Mycology and Mycobacteriology.** 0-1-1. Preq., consent of instructor. Advanced concepts in the use and interpretation of procedures and data.
- 477: Clinical Parasitology, Mycology and Mycobacteriology Laboratory.** 4.25-0-1. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of parasitological, mycological and mycobacteriological procedures.

- 478: Clinical Laboratory Administration.** 0-1-1. Preq., consent of instructor. Modern management concepts for the clinical laboratory.
- 479: Clinical Histopathology.** 4.25-0-1. Preq., consent of instructor. Advanced concepts in the use and interpretation of histotechnological procedures and findings.
- 480: Clinical Medical Technology Problems.** 4.25-0-1. Preq., consent of instructor. An introduction to emerging medical technologies.
- 481: Clinical Medical Technology Problems.** 8.5-0-2. Preq., consent of instructor. An introduction to emerging medical technologies.
- 482: Clinical Medical Technology Problems.** 12.75-0-3. Preq., consent of instructor. An introduction to emerging medical technologies.

COMPUTER SCIENCE

- 102: Programming with FORTRAN.** 0-3-3. Preq., Eligible for Mathematics 111. Problem analysis, algorithm development, data and control structures, and interpretation of results, with emphasis on numerical applications. Su,F,W,Sp.
- 104: Programming with COBOL.** 0-2-2. Preq., Computer Science 102 or equivalent. Problem analysis, algorithm development, data and control structures, and interpretation of results, with emphasis on data processing applications. F,W,Sp. Su.
- 106: Programming with PL/1.** 0-2-2. Preq., Computer Science 104. Problem analysis, algorithm development, data and control structures, and interpretation of results, with emphasis on character string and text processing applications. Su,F,W,Sp.
- 190: FORTRAN IV Programming.** 0-1-1. Computer programming using the FORTRAN (FORmula TRANslator) compiler language. Designed to provide a comprehensive background in scientific oriented programming.
- 191: COBOL Programming.** 0-1-1. Computer programming using the COBOL (COmmon Business Orientated Language) compiler language. Designed to provide a comprehensive background in business oriented programming.
- 192: Intermediate FORTRAN.** 0-1-1. Preq., Computer Science 190. A continuation of Computer Science 190 with emphasis on programming techniques and more advanced application. Su.
- 193: Introduction of PL/1 Programming.** 0-1-1. Preq., previous programming experience. Designed to provide a comprehensive background in structured programming using PL/1. Su.
- 194: Simulation Programming.** 0-1-1. Computer programming using the simulation language of G.P.S.S. (General Purpose Simulation System). Designed to provide a comprehensive background in using the computer to simulate real systems.
- 201: Information Processing.** 0-3-3. Preq., Computer Science 106. Concepts and techniques for structuring, storing, and processing data on bulk storage devices; sequential and direct access devices; data management methods. F,W,Sp.
- 206: Introduction to Computer Systems.** 0-2-2. Preq., Computer Science 201. Instruction-level organization of computers; internal representation, transfer and manipulation of data; instruction execution and sequencing; assembly language programming. F,W.
- 214: Systems Programming.** 0-3-3. Preq., Computer Science 206. Advanced assembly language programming; program segmentation and linkage; macro facilities; operating system data management, program development, and debugging facilities. W,Sp.
- 303: Foundations of Computer Science.** 0-3-3. Preq., Computer Science 214. Concepts from logic combinatorics, and language and automata theory related to common applications in computing; development of algorithms, models, and analysis methods. F,Sp.
- 350: Data Structures.** 0-3-3. Preq., Computer Science 214 and 303. Implementation of basic data structures; sort/merge/search methods; memory management techniques; analysis and design of efficient algorithms for data structures. F,W.

- 405: Computer Graphics.** 0-3-3. Preq., Computer Science 201 or consent of instructor. Graphics data structures, algorithms and languages; interactive graphics systems; application of computer graphics techniques. Sp.
- 424: Seminar.** 0-1-1. Preq., Senior standing in Computer Science. Preparation and presentation of reports on projects and topics relating to Computer Science. Sp.
- 433: Introduction to On-Line Systems.** 0-3-3. Preq., Computer Science 453 or consent of instructor. Teleprocessing monitors; multithreading; video display terminals; system performance parameters; mapping support; interaction of hardware, software and personnel in an on-line environment. F.
- 451: Languages and Compilers.** 0-3-3. Preq., Computer Science 350. Assemblers, compilers, and interpreters; run-time representations of data and program structures; formal descriptions of programming languages; lexical analysis and parsing. W.
- 452: Computer Organization.** 0-3-3. Preq., Computer Science 350. Programming, register, and microprogramming level architectures; processor data-flow and control; memory, input/output, and interrupt structures; intra and inter-system communication. Sp.
- 453: Operating Systems.** 0-3-3. Preq., Computer Science 350. Concepts and facilities for data, device, memory, and process management; multiprogramming systems; design alternatives. W.
- 456: Computer Systems Engineering.** 0-3-3. Preq., Computer Science 453, or consent of instructor. Interaction of hardware, software and personnel in computing systems; evaluation of system components; information processing systems engineering. Sp.
- 451: Data Base Systems.** 0-3-3. Preq., Computer Science 350. Data base concepts, organizations, and applications; data base management systems; implementation of a simple data base. F.
- 490: Applied Computing Project.** 0-1-1- (3). Preq., junior standing in Computer Science or equivalent. Independent investigation of a problem in computing. F,Sp.
- 510: Graduate Seminar.** 0-1-1 (3). Surveys, investigations, discussions, and presentations of current problems in computer science.
- 511: Design and Construction of Compilers.** 0-3-3. Preq., Computer Science 451, or consent of instructor. Formal description of programming language translation; syntax recognition; parsing and code generation; specification and implementation of a simple language.
- 521: Computer Systems Organization.** 0-3-3. Preq., Computer Science 452 or consent of instructor. Realization of recent development in computer systems design; multi-processor and highly parallel organizations; input/output devices.
- 524: Distributed Systems.** 0-3-3. Preq., Computer Science 350, or consent of instructor. Overview of distributed processing and introduction to computer networks; issues involving processors communications, interconnections, software and system management.
- 534: Performance Measurement and Evaluation.** 0-3-3. Preq., Computer Science 453, or consent of instructor. Computer systems performance analysis techniques; data acquisition methods; simulation techniques; interpretation of results.
- 531: Systems Programming.** 0-3-3. Preq., Computer Science 521 or consent of instructor. Programmed control of resource allocation and scheduling; device and data control, multiprogrammed and multiprocessor configurations.
- 540: Systems Design.** 0-3-3. Preq., Computer Science 460 or consent of instructor. Design and implementation of information systems; post-implementation analysis and evaluation; documentation and technical reporting.
- 547: Hybrid Systems.** 0-3-3. Preq., Computer Science 452 and Computer Science 453, or consent of instructor. Programmed monitoring and control of external processes by sensor-based digital computers; system hardware and software requirements; applications.

- 550: Special Problems.** 1-4 semester hour credit. Individual research and investigation of a problem in computer science or computing practice.

COUNSELING

- 400: Introduction to Counseling.** 0-3-3. Introductory course for professional workers. Includes purposes and scope of counseling service, concepts, principles and basic techniques of counseling. F,Sp.
- 401: Student Personnel Services.** 0-3-3. A study of student personnel programs in colleges and universities.
- 480: Behavioral Counseling.** 0-3-3. A non-cognitive approach to counseling that presents the necessary attitudes, concepts, principles, and skills for individual counseling.
- 500: Principles and Administration of Guidance Services.** 0-3-3. A study of current practices in the development, organization, administration, and supervision of the various types of guidance services.
- 505: Analysis of the Individual.** 3-2-3. Preq., Psychology 300 or equivalent. This course is designed to offer the student an orientation to psychological testing procedures, their evaluation, and use in the analysis of students.
- 508: Introduction to Counseling Theories.** 0-3-3. A detailed study of the best known schools of counseling theory, implemented by case studies in educational and vocational counseling.
- 513: Education and Occupational Information.** 0-3-3. A study of the sources and the uses of educational and occupational information in the counseling program.
- 514: Career Education: Vocational Guidance.** 0-3-3. A critical examination of sources of information to determine labor trends and employment requirements.
- 515: Career Education: Orientation of the World of Work.** 0-3-3. A study of the nature, scope and rationale for occupational information in the elementary school.
- 516: An Introduction To Group Processes.** 0-3-3. A course designed to acquaint the students with group and to lay foundations for leadership roles in human problem solving.
- 518: Techniques of Counseling.** 3-2-3. Preq., Counseling 508. Provides lab experience in counseling and interview analysis. Lab experiences shall include techniques appropriate to the varied counseling theories.
- 519: Advanced Theories in Counseling.** 0-3-3. Preq., Counseling 508. Further analysis of theories of counseling as is evidenced by a review of current counseling literature.
- 520: Case Studies in Counseling.** 1-3 hours credit. Preq., Counseling 508. Preparation of individual counseling research and case studies to be used in reviewing, analyzing, and evaluating applications of counseling theory.
- 521: Seminar: Current Psychological Literature.** 1-3 hours credit. Students are required to do extensive reading on selected topics in the areas of employment, vocational, and rehabilitation counseling or selected areas of psychology.
- 522: Field Work in Counseling.** 8-0-3. For non-school counselors. Study, observation, and practice in selected employment settings; integration of theory and practice through supervision of experience, seminars, and individual conferences. May be repeated for credit.
- 523: Elementary School Guidance.** 0-3-3. A review of the principles and organizational patterns of guidance services at the elementary school level.
- 525: Advanced Techniques of Counseling.** 3-2-3. Preq., Counseling 518 and consent of instructor. Provides lab experiences in advanced counseling techniques appropriate to various counseling theories.
- 526: Problems in Guidance.** 5-1-3. Special conferences, workshops, and seminars as requested by elementary and secondary school personnel. May be repeated for a maximum of 6 hours credit.

- 527: Addiction Counseling.** 0-3-3. An introduction to the field of Addiction Counseling. Emphasis is placed on recognition and identification of the addicted as well as basic treatment techniques.
- 528: Advanced Addiction Counseling.** 3-2-3. Preq., Counseling 527. A methods course intended to equip the student with a basic conception of various therapeutic modalities.
- 530: Practicum.** 5-1-3. Open only by invitation. Supervised professional activity in the student's major field.
- 531: Internship.** 20-1-3 (6). Preq., Counseling 530 or equivalent and permission of advisor. Advanced supervised counseling practice in a setting appropriate to the student's professional development.

DAIRYING

- 301: Testing Dairy Products.** 3-2-3. Preq., Animal Science 102. A chemical and bacterial test of milk and milk products. W, even.
- 310: Market Milk.** 3-2-3. Preq., Animal Science 102 and Bacteriology 210. The sanitary production, transportation, processing, distribution, and public health inspection of milk and related products. Sp, even.
- 318: Ice Cream.** 3-2-3. Preq., Dairying 310. The manufacture of ice cream and frozen dairy products. W, odd.
- 322: Butter and Cheese.** 6-1-3. Manufacture of butter and various types of cheese. Defects, packaging, and merchandising of butter and cheese. Sp, odd.
- 430: Dairy Plant Management.** 6-1-3. The management problems of dairy processing and manufacturing plants.

ECONOMICS

- 100: Current Economic Issues.** 0-3-3. Analysis of contemporary issues, emphasizing an introduction to the most important concepts in elementary economics. F,W,Sp.
- 200: American Industrial Development.** 0-3-3. A survey of the growth and development of the American economy. Su,F,W,Sp.
- 201-202: Economic Principles and Problems.** 0-3-3 each. (Not open to students who have had Economics 203-204-205.) A study of basic economic principles and problems, with particular reference to the operation and social implications of the American economic system. Su,F,W,Sp.
- 215: Fundamentals of Economics.** 0-3-3. (Not open to students who have had Economics 203-204-205 or 201-202.) A survey of the major principles of economics designed for the student whose curriculum requires only one quarter of economic principles. Su,F,W,Sp.
- 312: Monetary Economics.** 0-3-3. Preq., Economics 202 or 215. A study of the causes of changes in the supply of money and rate of spending and the effects of these changes on production, employment and the price level. Su,F,W,Sp.
- 320: Principles of Agricultural Economics.** 0-3-3. Preq., Economics 202 or 215. Economic theory with applications to production, marketing, and financing in agribusiness. Institutions such as cooperatives, farm credit systems, foreign agricultural trade, and government will be emphasized. Sp.
- 330: World Economic Resources.** 0-3-3. Preq., Economics 202 or 215. A study of the economic resources involved in the various regions of the world, including extractive, manufacturing, service industries.
- 344: International Economics.** 0-3-3. Preq., Economics 201 or 215 or consent of instructor. Introduction to modes of business operations and the economic factors which affect international trade. Study of principles, practices, and theory of how and why nations trade.
- 401: History of Economic Thought.** 0-3-3. Preq., Economics 202 or 215. Introduction to theorists who have contributed to the understanding of economic principles.
- 402: Economics of Farm Management.** 0-3-3. Economics principles applied to individual farm organization and management and study of farm accounting systems. F.
- 408: Comparative Economic Systems.** 0-3-3. Preq., Economics 202 or 215. A study of alternative economic systems such as capitalism, socialism, communism, and "mixed" in theory and practice.
- 408: Intermediate Economic Theory.** 0-3-3. Preq., Economics 202 or 215, or consent of instructor. Microeconomics; intensive study of price, production, and distribution theories. Su,W.
- 409: Managerial Economic Analysis.** 0-3-3. Preq., senior standing or consent of instructor. Lectures and cases emphasizing economic principles as used in managerial decision-making. Includes analysis of demand, cost and price relationships, price decisions, risk and uncertainty, and capital investment. F,Sp.
- 410: Public Finance.** 0-3-3. Preq., Economics 202 or 215. An introduction to the principles and theory of financing local, state, and federal governments. W.
- 411: Mathematical Economics.** 0-3-3. Preq., Mathematics 222 or Economics 408. Application of mathematical techniques to economic problems of price and output determination, input utilization, and national income.
- 418: Labor Economics.** 0-3-3. Preq., Economics 202 or 215 or consent of the instructor. Fundamentals of labor market operations, economic analysis of labor legislation; impact of American unions upon the firm's decision making and the national economy. F,Sp.
- 419: Collective Bargaining.** 0-3-3. Preq., Economics 202 or 215 or consent of instructor. History of American labor union movement; collective bargaining, labor-management problems, and government and labor relations. Considerable emphasis is given to case studies. Su,W.
- 430: Principles and Practices of Agricultural Marketing.** 0-3-3. Methods and channels of agricultural marketing; marketing principles; governmental action concerned with the marketing process; analysis and evaluation of marketing problems. W.
- 437: Aggregate Economic Analysis.** 0-3-3. Preq., Economics 312. Macro-economics; intensive study of economic theory of national income analysis, interest, employment, and fiscal policy. Sp.
- 448: Economic Development.** 0-3-3. Preq., Economics 202 or 215. Analysis of the theories and problems of economics development.
- 449: Latin America: Business and Economic Development.** 0-3-3. International trade, international business and economic patterns in Central and South America. Selected issues of major current importance and their backgrounds.
- 450: Selected Topics in Economics.** 0-3-3- (9). Preq., consent of the instructor. Various topics in the field of economics.
- 472: Consumer Economics.** 0-3-3. Nature of consumer demand; management of individual consumer purchases and personal finances.
- 510: Managerial Economics.** 0-3-3. Analysis and cases; actual case studies in the application of price and distribution theory to problems of the firm.
- 512: Current Economic Policies.** 0-3-3. An investigation of modern economic concepts in the United States through a study of policies advanced by various economic groups tending to shape economic action.
- 513: Macroeconomic Theory I.** 0-3-3. Preq., Economics 437 or other acceptable background course (s). Analysis of monetary factors and government revenue-expenditure factors affecting the general level of prices, investment decisions, interest rates, national income, and employment.
- 520: Advanced Microeconomic Theory.** 0-3-3. Preq., Econ 408 or other acceptable course (s). Value and distribution theory emphasizing applications to business operations and public policy issues.
- 532: Econometric Methods.** 0-3-3. Preq., Quantitative Analysis 432 or other acceptable courses. The use of statistical techniques in economic research including estimation and interpretation of parameters of economic models.
- 540: Macroeconomics: Business Conditions Analysis.** 0-3-3. Preq., Econ 510. Detailed review of techniques, procedures and

data sources used by business economists to gather, analyze, interpret, and forecast macroeconomic variables.

- 541: Microeconomics: Business Conditions Analysis.** 0-3-3. Preq., Econ 510. Detailed review of techniques, procedures, and data sources used by business economists to gather, analyze, interpret and forecast microeconomic variables.
- 542: Seminar on Business Economics Problems.** 0-3-3. Preq., Econ 510 or consent of instructor or equivalent. Students will develop and present an analytical study in micro- or macroeconomics in a form expected of a business economist's presentation to corporate management.

EDUCATION

- 101: Orientation.** 0-1-1. Basic rules, policies, history, and organization of the University with special application to education. Su,F,W,Sp.
- 102: Reading Skills for College Freshmen.** 9-0-3 (9). The course provides individually prescribed instruction in reading skills for college freshmen. The course objective is to help alleviate reading deficiencies which inhibit effective learning. Non-degree credit. F.
- 200: Introduction to Education.** 1-3-3. Designed to give the future teacher an understanding of the problems, requirements, and opportunities of the profession. Su,F,W,Sp.
- 300: Driver Education and Highway Safety.** 0-3-3. Investigation of the problems facing drivers, traffic design problems, and the study of the philosophy of driver education. F.
- 320: Methods and Materials for Elementary Science and Social Studies.** 0-3-3. Preq., Psychology 204. A course for the study of curriculum, organization and teaching in elementary science and elementary social studies. Su,F,W,Sp.
- 322: Materials and Methods of Teaching Mathematics in Elementary Schools.** 0-3-3. Preq., Psychology 204. An examination of the characteristics and objectives of the modern elementary mathematics program combined with experiences in content, methods, and organizations. Su,F,W,Sp.
- 323: Materials and Methods in Language Arts for the Elementary Schools.** 0-3-3. Preq., Psychology 204. A course to enable students to use current principles, research, methods and materials to teach oral, written and reading communication skills. Su,F,W,Sp.
- 324: Methods and Materials in Teaching Reading in Elementary Schools.** 0-3-3. Preq., Psychology 204. Principles, methods, and research pertaining to the teaching of reading will be emphasized. Su,F,W,Sp.
- 350: Materials and Methods in Teaching English.** 0-3-3. Preq., Education 380. The student will be introduced to the best techniques of organizing and presenting English material. W.
- 351: Materials and Methods in Teaching Modern Language.** 0-3-3. Preq., 12 hours of modern languages and Education 380. The student will be introduced to the latest techniques of organizing materials and presenting them to high school pupils. W.
- 352: Materials and Methods in Teaching Science.** 0-3-3. Preq., Education 380. A careful examination of the most advanced methods of organizing and presenting materials in sciences for the secondary school. W.
- 353: Materials and Methods in Teaching Social Studies.** 0-3-3. Preq., Education 380. An examination of the character and purpose of social studies is followed by presentation of appropriate teaching suggestions. W.
- 354: Materials and Methods in Teaching Speech.** 0-3-3. Preq., Education 380. An examination of materials and methods for teaching speech in elementary and secondary schools. W.
- 355: Materials and Methods in Speech, Language and Hearing in the Public Schools.** 0-3-3. Practical problems in the identification, diagnosis, and treatment of communication disorders in school children, with emphasis on materials, organization of therapy program and teaching procedures.
- 356: Materials and Methods in Teaching Mathematics.** 0-3-3. Preq., Education 380 and Mathematics 230. The nature of mathematics and methods of teaching. Special emphasis will be placed on the interpretation and solving of reading problems. W.
- 357: Materials and Methods in Teaching Health and Physical Education.** 5-2-4. Preq., Education 380. To introduce students to the latest materials and methods used in teaching health and physical education. F,W,Sp.
- 360: Materials and Methods in Teaching Art.** 0-3-3. Preq., Education 380. The planning of a course of art and the methods of presentation of such a course in the elementary and high schools. W.
- 380: Principles of Secondary Teaching.** 0-3-3. An investigation of the principles of secondary teaching as related to the student, curriculum, and the teaching-learning process.
- 390: Audio-Visual Lab.** 1 1/4-1-1. Preq., Education 380 or 320 and 90 semester hours. A course to instruct the prospective teacher in the operation of various types of audio-visual equipment. Su,F,W,Sp.
- 400: Audio-Visual Methods of Teaching.** 1-3-3. To acquaint teachers with the interrelated uses of audio-visual materials and techniques, including laboratory experience. (Additional credit may not be earned in Education 390.) Su,F,W,Sp.
- 401: Directed Observation and Pre Student Teaching Experiences.** 3 3/4-1-1. Preq., Education 380 and 90 semester hours. Directed observation, participation, and critique related to the field in which the student plans to student teach.
- 402: Measurement in Education.** 0-2-2. Preq., Education 380 or 320. Includes principles of measurement, construction and utilization of teacher-made and standardized tests. Shall be taken prior to or concurrently with student teaching. Su,F,Sp.
- 403: Materials and Methods of Teaching Reading in the Secondary School.** 0-3-3. Deals with problems of teaching reading in the secondary school. Includes emphasis on remedial and developmental reading as well as reading instruction in content areas. Su,F,W,Sp.
- 404: Reading Strategies for Secondary School Teachers.** 0-3-3. Instructional techniques designed to assist the secondary teacher in implementing reading strategies in content courses.
- 406: Education Innovations in the Current and Emerging Schools.** 0-3-3. Study of educational innovations and their implications. Topics include nongraded schools, team teaching, educational television, and flexible scheduling. W.
- 408: Materials and Methods in Teaching Business Education.** 2 to 3 semester hours. Preq., Office Administration 307, Accounting 210, Quantitative Analysis 220. A course designed to acquaint the student with the best practices in teaching commercial subjects. W.
- 410: Business and Office Operations.** 0-3-3. Methods and procedures in developing and coordinating a cooperative office education program in the secondary school. F.
- 416: Student Teaching.** 6-9 hours credit. Meet all qualifications identified in this catalog for teaching level or area of specialization. Student receives appropriate supervised experiences. Total clock hours determined by program. Two hours of seminar.
- 420: Practice in Education.** 10-1-3. Preq., Consent of Director of Laboratory Experience. Structured laboratory experiences in area(s) of specialization in education. May be repeated for credit. Su,F,W,Sp. (Pass-Fail).
- 426: Improving Instruction in Music.** 0-3-3. Preq., senior standing. Analysis of varied materials, methods and techniques; titles available from different publishers, rental libraries, and the State Department of Education; attention to evaluation and selection for different levels of attainment. Su,Sp.
- 431: School Readiness.** 0-3-3. Preq., Psychology 204. Designed to acquaint the student with the appropriate theory, understanding, and methods necessary for successful school achievement. Particular emphasis will be on readiness in Language Arts. F,Sp.
- 432: Kindergarten Education.** 0-3-3. Preq., Psychology 204. Course will involve readings as background for a study of the

development of kindergarten education and curriculum planning based on principles of child development. Su,W.

- 433: Special Problems in School Curriculum.** 0-3-3. (9). Preq., consent of the instructor. This course is designed to deal with selected problems in elementary and secondary schools. Su,F,W,Sp.
- 441: Methods of Teaching Kindergarten Children.** 0-3-3. Preq., Psychology 205, Library Science 201, and Education 432. Practical problems in the selection and organization of the curriculum to promote the child's learning. Emphasis on planning, selecting equipment, teaching aids, and teaching procedures. F,Sp.
- 445: Using the Microcomputer in the Classroom.** 1-3 hours credit. Operating, programming, and using microcomputers for classroom instruction. Computer literacy concepts, software evaluation, and programming are included. (Offered for one hour credit -Summer only.) Su,F,W,Sp.
- 446: Instructional Classroom Materials.** 0-3-3. Designed to acquaint teachers with the selection, preparation, utilization and evaluation of audio-visual instructional materials. Su,W.
- 447: Software Application, Teaching Methods, and Intermediate Programming for Teachers.** 1-3 hours credit. (3). Preq., A course in BASIC programming. Computer-assisted instructional software, authoring packages, LOGO, and intermediate programming skills for classroom instruction. (Offered for one hour credit -Summer only). Su.
- 448: Microcomputer Software Development for High School Teachers.** 1-3 hours credit. (3). Preq., A course in BASIC programming. Methods for teaching computer-related topics and programming techniques for designing instructional modules for secondary courses. (Offered for one hour credit - Summer only). Su, Sp.
- 449: Administrative Applications of the Microcomputer in Schools.** 0-3-3. A course to provide information concerning the administrative users of computers in schools, hardware/software/consultant resources, and methods for developing effective in-service programs. Su.
- 450: Improving Instruction in Art.** 0-3-3. Problems of teaching art in elementary and junior high school with emphasis upon philosophy, art materials and techniques, evaluation and curriculum planning. Su, even.
- 451: Software Applications in the Teaching of Reading.** 1-3 hours credit. (3). The microcomputer is used to prepare software for use in content reading applications and test construction. (Offered for one hour credit - Summer only). Su.
- 452: Administration of Instructional Materials Centers.** 0-3-3. Techniques organization, management and selection of printed and non-book materials in multi-media instructional materials centers. Su, even.
- 482: Principles and Problems of Cooperative Education.** 0-3-3. The basic principles and philosophies of cooperative vocational education. History and development of cooperative education. F.
- 465: Materials and Methods of Teaching Vocal Music.** 0-3-3. Preq., Education 380. Examines problems which confront the secondary teacher and supervisor of vocal music; e.g., program building, contests, festivals, requisitions, grading, materials, scheduling, and rehearsing. Sp.
- 466: Materials and Methods of Teaching Instrumental Music.** Preq., Education 380. See Education 465 for description; emphasis on the instrumental aspects. Sp.
- 471: Behavior Management in the Classroom.** 0-3-3. Course emphasizes the application of concepts, principles, and skills necessary for designing, implementing, evaluating and revising behavior change plans for academic and/or social behavior problems in the classroom.
- 472: Individually Guided Education.** 0-3-3. Presents the essential concepts principles, and skills of several individualized instruction models and teacher roles as designers, managers, and evaluators of the teaching-learning process.
- 485: Child Study.** 0-3-3. Emphasis is placed on observing the dynamic interrelations between all processes in the behavior and the development of an individual. F.
- 486: Child Study.** 0-3-3. A continuation of Education 485.
- 487: Child Study Leadership.** 0-3-3. Offers apprenticeship in training persons to become staff members in human development workshops and consultants to Child Study Field Programs. Sp.
- 490: Introduction to Adult Education.** 0-3-3. A study of the history, philosophy, objectives and nature of adult and continuing education; emphasis given to the adult as a learner. F.
- 491: Reading in Adult Education.** 0-3-3. Examines the basis of reading instruction in relation to the needs and characteristics of the functionally illiterate adult. Sp.
- 492: Methods and Materials in Adult Education.** 0-3-3. Examination of characteristics unique to the adult with emphasis on analysis of the methods and materials available for working with adults. W.
- 495: Methods and Materials in Teaching Aerospace Education.** 0-3-3. The course is designed to familiarize students with the contribution that aerospace education can make in the development of the school curriculum. Su.
- 496: Elementary Aerospace Education.** 0-3-3. Designed to assist the elementary teacher in applying Aerospace Education concepts and materials in the regular school curriculum.
- 501: Problems in Teaching Elementary Science.** 0-3-3. A survey of research bearing on problems of organizing, developing, and evaluating the curriculum in science.
- 502: Problems in Teaching Language Arts in the Elementary School (Other than Reading).** 0-3-3. A study of the principles, research, methods and materials needed for teaching written and oral forms of communication in elementary and junior high schools.
- 503: Problems in Teaching Reading.** 0-3-3. A study of problems in the teaching of reading in elementary schools. Special emphasis will be given to the development of a reading program, diagnosis, and care of individual needs of pupils, use of materials, research findings, and their applications to methods of instruction.
- 504: Problems in Teaching Mathematics in the Elementary School.** 0-3-3. A study of the needs and problems of teachers of mathematics in the elementary school. An introduction to modern arithmetic with emphasis on newer teaching methods.
- 506: Improving Instruction in English.** 0-3-3. A study of the methods of teaching usage and literature, analyses of curricula, selection of materials, research in recent studies in the teaching of English. Special attention will be given to planning units of work, to creative teaching and to a consideration of the needs of youth in areas of reading, writing, speaking, and listening.
- 507: Improving Instruction in High School Mathematics.** 0-3-3. The place of mathematics in general education and in specialized fields; professionalized subject matter; modern methods of teaching. Students will become familiar with teaching aids, long-unit assignments, and the construction and use of standardized and teacher-made tests.
- 508: Improving Instruction in Science.** 0-3-3. A study of present-day trends in the teaching of science, content, organization of materials, methods of instruction, student activities, objectives, observation trips, use of textbooks, laboratory work and equipment, evaluation, preparation of unit and lesson plans, projects and student guidance.
- 509: Improving Instruction in the Social Studies.** 0-3-3. A study of the selection and organization of subject-matter in social studies, the planning of student activities, the use of instructional materials. Students will prepare unit and lesson plans utilizing community resources.
- 511: Improving Instruction in Speech.** 0-3-3. A course designed to extend the student's knowledge and experience in the area of speech which he/she has chosen to pursue. The student will concentrate his/her work in one of the following areas: speech

therapy, audiology, public address, speech science, drama, interpretation, or broadcasting.

- 512: Philosophy of Education.** 0-3-3. Designed to trace some of the more important educational problems as they have been affected by social and political facts of history, by contributions of leading educational theorists and by institutional practice.
- 513: Philosophy of Music Education.** 0-3-3. A review of the historical development of music education in America and an analysis of trends in music education from 1930 to the present time.
- 514: The Learner in Adult Education.** 0-3-3. The learner in adult education programs will be examined. Emphasis will be given to the teaching-learning process and the uniqueness of adult learning situations.
- 515: Administration and Supervision of Adult Education.** 0-3-3. General administrative processes, emphasizing program planning and evaluation.
- 516: Advanced Principles of Secondary Education.** 0-3-3. An investigation of advanced learning theories, principles, and problems in the current and emerging schools.
- 517: History of Education.** 0-3-3. A study of the development of education from ancient times through the scientific movement.
- 518: History of American Education.** 0-3-3. A survey of the development and growth of elementary, secondary, and higher education with emphasis upon American education.
- 519: Contemporary Issues in Adult Education.** 0-3-3. Investigates current problems and future trends in the broad field of lifelong learning. F.
- 520: Education for the Older Adult.** 0-3-3. Designed as a study of the elderly as a unique group of learners—defining specific needs of the elderly. Sp.
- 524: Supervision of Student Teaching.** 0-3-3. Designed for experienced teachers who are interested in serving as supervising teachers in teacher-education programs.
- 525: Seminar in Business Education.** 0-3-3. Investigation, analysis, and discussion of current problems, philosophy, and trends in business education. Required of master's degree candidates in business education.
- 527: Public School Organization and Administration.** 0-3-3. Introduction to national, state, and local administration; public school finance; principles and practices of administration; administration of special services; national and state legal aspects of public school administration, and administration of school-community relations.
- 528: Evaluating Pupil Growth.** 0-3-3. Methods and procedures in test development, administration, validation, and interpretation.
- 529: Educational Planning and Accountability.** 0-3-3. A survey of planning and accountability models in education while emphasizing the essential principles and skills necessary for designing, implementing, and evaluating educational plans.
- 533: Problems in Education.** 0-3-3 (9). Preq., consent of the instructor. An advanced course dealing with special problems in the different fields of education.
- 534: Diagnosis and Evaluation of Reading Difficulties.** 0-3-3. Preq., Education 503. Causes, diagnosis, evaluation and correction of reading disabilities.
- 535: Clinical Reading.** 7-1-3. Preq., Education 534. Clinical experience in diagnosing reading problems of school children.
- 536: Clinical Reading.** 7-1-3. Preq., Education 535. Practicum in remedial reading for school children.
- 537: Seminar, Problems in Reading.** 0-3-3. Preq., consent of instructor. Recent issues, theories, studies and research findings in teaching reading.
- 538: Supervision and Curriculum Development in Reading.** 0-3-3. Construction of an innovative curriculum in reading, plans for implementation of new curriculum, and supervision of the reading program.
- 539: Advanced Laboratory Practicum in Reading.** 7-1-3. Supervised internship in reading.
- 540: Comparative Education.** 0-3-3. A study of the educational systems in Europe, the Orient, and South America.

- 541: Introduction to Graduate Study and Research.** 0-3-3. Experience is gained in the application of techniques of educational research, in writing in acceptable form, and in evaluating research. Required of all master's candidates in education and should be scheduled during the first six hours of graduate work. (Not open to students who have credit in Education 551.)
- 542: Statistical Methods in Education.** 0-3-3. A study of the statistical methods used by school personnel in the study of educational problems.
- 543: Adjudication of Instrumental Ensembles.** 0-2-2. This course examines in detail a philosophy of the phenomenon of adjudication. It includes practical aspects of evaluation.
- 544: Reading in the Content Areas.** 0-3-3. Provides teaching methods and research findings related to the reading process as it applies to the various content areas of the curriculum.
- 545: The New Media in Education.** 2-2-3. A study of the uses of television, teaching machines, programmed materials, overhead projectors, loop films, and other new teaching aids with some practical experience in the use of these educational aids.
- 548: Improving Instruction in Shorthand, Typewriting, and Clerical Office Practice.** 0-3-3. A study of the methods used in teaching beginning and advanced shorthand, typewriting, and clerical office practice; evaluation of instructional materials; development of original materials in accordance with teaching procedures recommended by authorities in the field; special consideration of teaching problems.
- 549: Improving Instruction in Bookkeeping, Basic Business and Related Areas.** 90303. A study of the selection and organization of teaching materials for Bookkeeping, General Business, Consumer Economics, Business Law, and Business principles and management. Consideration will be given to standards of achievement, evaluation, motivation devices, visual aids, projects, practical problems, and unit lesson planning.
- 551: Research and Thesis.** Three hours of multiples thereof. Maximum credit allowed is six hours.
- 553: Principles of Instructional Supervision in the Elementary School.** 0-3-3. Designed to aid the prospective elementary administrator who will have the responsibility for improvement of instruction in the elementary school.
- 554: Principles of Instructional Supervision in the Secondary School.** 0-3-3. A course designed to aid the prospective secondary administrator who will have the responsibility for improvement of instruction in the secondary school.
- 555: School and Community Relations.** 0-3-3. Principles of school relations applied to education and the development of school and community understandings.
- 556: School Law.** 0-3-3. State and national aspects and implications of public school law. Special attention is given to cases in both state and federal courts.
- 557: Elementary School Principalship.** 0-3-3. Duties and responsibilities in organization, leadership, administration and supervision in the elementary school.
- 558: Secondary School Principalship.** 0-3-3. Duties and responsibilities in organization, leadership and administration of the secondary school.
- 559: School Finance.** 0-3-3. An in-depth survey into the financial and business management in public education.
- 560: School Personnel Administration.** 0-3-3. A course to equip the new principal to administrate all school personnel.
- 561: Research Design and Analysis.** 0-3-3. Preq., Education 542. A study of the techniques involved in the analysis of selected experimental designs in educational research.
- 562: Elementary School Curriculum.** 0-3-3. A study of principles of curriculum construction in the elementary school. Emphasis is upon selection, organization and evaluation of materials suitable to the elementary school.
- 563: Secondary School Curriculum.** 0-3-3. A study of the principles of curriculum development in the secondary school.

564: The Reading Process. 0-3-3. An analysis of the physiological, psychological, and neurological foundations of the reading process.

570: Field Problem and Internship. 0-3-3. Preq., approval of the Head of the Department of Office Administration and Business Education. The provision of supervised professional activities in business education directed by the business education faculty. Selection of one major area of business education for intensive study in terms of methods, materials, research, and curricular problems.

571: Research and Readings in Business Education. 0-3-3. Preq., a graduate level research course covering descriptive, historical, experimental and other established methods and techniques of study and approval of the Head of the Department of Office Administration and Business Education. An analysis of literature in business education; trends and recent developments in this field; particular attention to problems related to the student's individual needs or interests.

580: Specialist Research and Thesis. Three hours credit or multiples thereof. Maximum credit allowed is six hours.

ELECTRICAL ENGINEERING

100: Introduction to Electrical Engineering. 3-0-1. A survey of topics to introduce the student to the profession, the department and the curriculum. F.

221: Electrical Circuits. 0-3-3. Preq., credit or registration in Mathematics 231. Fundamental concepts units and laws. Solution of circuits, network theorems and network simplification. Computer solution of circuits. Transient analysis of both source-free and driven first and high order systems. F,W,Sp.

222: Electrical Circuits. 0-3-3. Preq., Electrical Engr. 221 and credit or registration in Mathematics 232. Sinusoidal forcing functions. Phasor concepts. AC circuit analysis. Power and RMS values. Polyphase circuits. Complex frequency and resonance phenomena. F,W,Sp.

226: Electrical Circuits. 0-3-3. Preq., Math 231 and Physics 202. Fundamental electrical concepts and units. Equivalent circuits. A. C. Circuit analysis. Average power and effective current. Su,F,W,Sp.

229: Electrical Circuits Laboratory. 3-0-1. Preq., Electrical Engineering 221. An introduction to computer methods, instruments, devices and design for measurements in electrical networks. Su,F,W,Sp.

311: Introduction to Electric and Magnetic Fields. 0-3-3. Preq., Electrical Engineering 222 and Physics 202. Vector analysis. Static electric fields. Energy and potential. Mapping methods. Static magnetic fields. Magnetic circuits and inductance. Su,F,W.

321: Linear Systems. 0-3-3. Preq., Electrical Engineering 222 and credit or registration in Math 330. Fourier Series. Fourier Transform. Laplace Transform. Convolution and the system function. Filters. State variable representation and solution. F,Sp.

329: Electric Circuits Laboratory. 0-3-3. Preq., Electrical Engineering 229 and 222 and credit or registration in Electrical Engr. 321. Voltage, current, and power measurement in polyphase circuits. Design of filter and tuning circuits. Pole-zero concepts. Characteristics of coupled circuits. Frequency spectra. F,Sp.

331: Digital Electronics. 0-3-3. Preq., Electrical Engr. 222. Diode and transistor characteristics and models. Boolean algebra. Design and application of logic circuits. Combinational system design. Latches, flip-flops, counters, registers. F,W.

332: Analog Electronics. 0-3-3. Preq., Electrical Engr. 331. Analysis and design of single- and multiple-stage amplifiers, frequency response characteristics of amplifiers, operational amplifier analysis, design and applications.

336: Electronics. 0-3-3. Preq., Electrical Engr. 226. Signal processing, basic semiconductor theory, semiconductor devices, amplifiers and industrial applications, integrated circuits, logic circuits, memories, binary arithmetic and Boolean algebra.

339: Electronics Design Laboratory. 3-0-1. Preq., Electrical Engineering 332. Design of DC power supplies, single-stage amplifiers, digital circuits, and operational amplifier applications.

381: Electrical Machinery. 0-3-3. Preq., Electrical Engr. 222 and 311. Electromagnetic energy storage and conversion. Principles of electromechanical energy conversion. Power transformers. Design of electromechanical devices. Analysis of rotating machines. F,W.

386: Electrical Equipment for Buildings. 0-3-3. Preq., Mathematics 220 and Physics 210. Not available for electrical engineering majors. A study of the problems of the design and application of electrical wiring and lighting systems for building. Su,W.

389: Electrical Machinery Laboratory. 3-0-1. Preq., Elec. Engr. 303 and credit or registration in Elec. Engr. 381. Laboratory design and testing of basic electromechanical devices and machines. F,W.

402: Electrical Engineering Design. 6-1-3. Preq., senior standing, Electrical Engr. 355, 309 and permission of instructor. Design problems requiring the integration of circuits, electronics, field theory, power conversion, economics, etc. F,W,Sp.

403: Electrical Design. 3-0-1. Preq., Written consent of supervising instructor. Closely supervised design of Electrical Engr. problem. Opportunity for individual investigation, design and construction of electrical apparatus or system. Su,F,W,Sp.

404: Electrical Design. 6-0-2. Preq., Written consent of supervising instructor. Closely supervised design of Electrical Engr. problem. Opportunity for individual investigation, design, and construction of an electrical apparatus or system. Su,F,W,Sp.

405: Seminar. 0-1-1. Preq., senior standing. Exchange of ideas on engineering design, professional development, continuing education. Technical presentations, panel discussions, debate. Su, F, W, Sp.

411: Electric and Magnetic Fields. 0-3-3. Preq., Electrical Engineering 311 and Mathematics 350. Capacitance. LaPlace's Equation. Maxwell's equations. Time-varying electromagnetic fields. Plane waves. Transmission lines. Design of impedance-matching devices. W,Sp.

412: Signal Transmission. 0-3-3. Preq., Electrical Engr. 411. Transmission lines and distributed parameters. Wave guides, traveling electro-magnetic wave analysis, and boundary value problems. Impedance matching, graphical solutions, and microwave networks, Laboratory applications and design.

435: Electronics. 0-3-3. Preq., Electrical Engr. 332. Feedback amplifiers, integrated circuit analysis, operational amplifier applications in the areas of nonlinear circuits, active filters, switching circuits, controls, and communications.

441: Industrial Computer Design. 3-2-3. Preq., Electrical Engr. 442 or consent of the instructor. The design of industrial control computers using standard computer modules. Control software design.

442: Microcomputer Organization and Software Design. 3-3-4. Preq., Engineering 102 or consent of the instructor. Introduction to fundamental software design, organization of Microcomputers, Machine codes and Macro assembly languages. Su,F,W.

443: Digital Logic Design. 0-3-3. Preq., Electrical Engr. 331 or consent of instructor. Design of switching circuits. Simplification methods for combinational logic. Number systems. Codes. Synchronous and asynchronous logic design methods. Hazards and applications. F,Sp.

446: Microprocessor Applications. 3-2-3. Preq., Electrical Engineering 442 or equivalent. Consent of the instructor. An introduction to the use of microprocessors. Available devices, organization, programming, system design. Sp.

447: Digital Industrial Control I. 3-0-1. Preq., Minimum computer programming or consent of instructor. An introduction to Z80 Macro assembly language programming required for industrial control software design with the Z80 processor.

446: Digital Industrial Control II 3-0-1. Preq., Electrical Engr. 447 or consent of instructor. An introduction to Z80 STD Busses modules, hardware, and software interfacing requirements, and design of module testing hardware and software for industrial applications.

- 449: Digital Industrial Control III.** 3-0-1. Preq., Electrical Engr. 447 and 448 or consent of instructor. The design and testing of an industrial control application using Z80 STD Bus modules.
- 450: Selected Topics.** 0-2-2. Preq., permission of instructor. Work in an area of recent progress in electrical engineering of immediate interest or need. Topic selected will vary from term to term. Su, F, W, Sp.
- 451: Special Topics.** 0-3-3. Preq., consent of instructor. Study in an area of recent progress in electrical engineering of immediate interest or need. Topic selected will vary from term to term. Su, F, W, Sp.
- 461: Communication Systems.** 0-3-3. Preq., Electrical Engr. 321 and 332 or consent of the instructor. Evaluation and design of communication systems utilizing Fourier and random-signal analysis. Amplitude, frequency, pulse, pulse-code modulation and demodulation. Multiplexing. F.
- 462: Digital Communication Systems.** 0-2-2. Preq., Electrical Engr. 461 or consent of instructor. Analysis and design of digital communication systems for transmitting digital and analog data. Coding; multiplexing; PCM; delta modulation; spread spectrum; FSK; PSK; performance analysis. W.
- 463: Optical Communication Systems.** 0-3-3. Preq., Electrical Engr. 411. Optical waveguides, mode theory and ray optics. Transmission losses and signal distortion. Optical sources, detectors and transmission link analysis.
- 471: Automatic Control Systems.** 3-3-4. Preq., Electrical Engr. 321, Math 350 or consent of instructor. Analysis and design of linear feedback systems. Mathematical modeling. Transfer functions and signal-flow techniques. Analog and digital simulation. Performance criteria and system stability. F, Sp.
- 472: Linear Discrete Systems I.** 0-2-2. Preq., consent of instructor. An introduction to the theory of linear discrete control systems. Time domain analysis and state variable methods.
- 473: Linear Discrete Systems II.** 0-2-2. Preq., Electrical Engr. 472 or consent of instructor. Stability theory. Periodic systems. Macroscopic system theory and Z-transform analysis.
- 481: Power Systems.** 0-3-3. Preq., Electrical Engr. 381 or consent of instructor. Per-unit notation. The design and analysis of balanced power systems including load flow, economic dispatch, short circuit and over current device coordination and control of watts and vars. F, W.
- 482: Power Systems Design and Analysis.** 0-2-2. Preq., Elec. Engr. 481 or consent of instructor. Symmetrical components. Analysis of power systems in the transient state including unsymmetrical faults, stability, lightning, and switching surges. Control of frequency and power flow in interconnected systems. Sp.
- 483: Industrial Energy Systems Design.** 0-2-2. Preq., Elec. Engr. 481 or consent of instructor. Design of new and expansion of existing substations, feeders, motor control centers, motor applications and motor controls. Local generation. Power factor correction techniques. Uninterruptable power supplies. Programmable control devices.
- 512: Electromagnetic Waves.** 0-3-3. Preq., Electrical Engr. 411 or permission of instructor. Propagation, reflection and refraction of electromagnetic waves. Guided waves and power flow. Boundary-value problems.
- 513: Antennas and Radiation.** 0-3-3. Preq., Electrical Engr. 512 or permission of instructor. Channel effects and types of propagation. Theory and practice in antenna design.
- 521: Systems Engineering.** 0-3-3. Preq., permission of instructor. Tools of large scale system design. Computer aids to system design and simulation.
- 522: Active Network Synthesis.** 0-3-3. Preq., Electrical Engr. 321 and 332 or permission of instructor. Basic properties of linear lumped finite networks. Synthesis of active RC, n-port networks. Characterization of active and nonreciprocal elements.
- 523: Active Network Synthesis.** 0-3-3. Preq., Electrical Engineering 522 or permission of the instructor. Negative impedance converters and controlled sources in active R-C network synthesis. Lossless nonreciprocal two-part network synthesis. Characterization of negative impedance amplifiers.
- 532: Integrated Circuit Design.** 0-3-3. Preq., Electrical Engineering 332 or permission of the instructor. Integrated circuit fabrication, isolation techniques, bipolar circuits, MOS, DMOS, VMOS structures. Pattern generation, mask alignment and layout of integrated circuits.
- 533: Optoelectronics.** 0-3-3. Preq., Permission of instructor. Modulation of light, display devices, lasers, photodetectors, optical transistors, logic gates, Waveguides, transmitter and receiver design.
- 541: Automata Theory.** 0-3-3. Preq., permission of instructor. Theory of automata, machine characterization, computability. State and machine equivalence. Machine minimization. State and machine identification.
- 542: Microcomputer Software Design.** 3-3-4. Preq., consent of instructor. Software design fundamentals. Modular Design, Microcomputer Organization, Machine Codes, Macro Assembler, and design of high level languages for control applications.
- 543: Microcomputer Design.** 0-3-3. Preq., Electrical Engr. 331 and 442 or consent of instructor. Study of microcomputer design. Microcomputer Development System and Logic Analyzer. Design of control processors.
- 550: Special Problems.** 1-4 semester hours. Advanced problems in electrical engineering. The problems and projects will be treated by current methods used in professional practice.
- 561: Random Signals and Systems.** 0-3-3. Preq., Electrical Engineering 461 and 471 or permission of instructor. Random signal analysis. Correlation and power spectrum analysis. Stochastic communication and control systems.
- 562: Digital Communication Networks.** 0-3-3. Preq., Electrical Engineering 462 or permission of instructor. Review of digital communications. Network topology, design, performance. Packet-switched networks. LANs. Efficiency, reliability, and security.
- 564: Information Theory.** 0-3-3. Preq., Electrical Engr. 561 or permission of instructor. Quantitative theory of information based on probability. Discrete and continuous signal information. Noise entropy, redundancy, code capacity, and language transmission capacity.
- 565: Digital Signal Processing.** 0-3-3. Preq., Electrical Engr. 461 or permission of instructor. Review of discrete linear signals and systems theory. Design/Implementation of FIR and IIR digital filters. Quantization and finite word length effects. Spectrum estimation.
- 566: Estimation Theory.** 0-3-3. Preq., Electrical Engr. 561 or permission of instructor. Estimation, based on noise-corrupted observations, of unknown system states. Maximum-likelihood and least square estimation; matched filters. Weiner and Kalman filtering.
- 571: Modern Control Systems.** 0-3-3. Preq., Electrical Engr. 471 or consent of instructor. State-space representation of systems. Controllability and observability. Stability Theory. System design using pole placement. Introduction to optimal control. State-variable simulation.
- 572: Digital Control Systems I.** 0-3-3. Preq., Electrical Engr. 471 or permission of instructor. Sampling Theory. Data reconstruction. Z-transforms. Stability analysis. Time-domain analysis. Frequency domain analysis. Introduction to Digital Control Systems.
- 573: Digital Control Systems II.** 0-3-3. Preq., Electrical Engr. 572 or permission of instructor. Review of Z-transforms. State variable techniques. Controllability and observability. Design of digital control systems with state variable techniques. Digital state observer. Microprocessor control.
- 574: Digital Control System Design.** 0-3-3. Preq., Electrical Engr. 572 or consent of instructor. Design of digital control systems; classical, state space design. Robotics. Real time filtering techniques. Application of digital computers in closed loop systems.
- 581: Computer Applications to Power Systems.** 0-3-3. Preq., Electrical Engr 481 or permission of instructor. The study of algorithms for power network matrices, three-phase networks, fault, load flow and stability problems solution by computer methods.

- 582: Motor Control and Power Electronics.** 0-3-3. Preq., Electrical Engr. 381 or permission of instructor. Electronic and electromagnetic motor control devices; programmable controllers; motor protection; solid state power device application to dc and ac power conversion.
- 583: Electric Power Distribution System Design.** 0-3-3. Preq., Electrical Engr. 481 or permission of instructor. Design of utility distribution systems. Substation layout, switching devices, aerial and underground lines and cables, code requirements development of standards.
- 584: Electromechanical Energy Conversion.** 0-3-3. Preq., Electrical Engr. 381 or permission of instructor. Equations of motion of electromechanical systems. Analytical techniques for solution of equations. Typical transducers. The generalized machine system dynamics.
- 641: Advanced Topics in Computer Systems.** 0-3-3. Preq., Electrical Engr. 543 or permission of instructor. Topics on the latest advancements in computer systems and computer design.
- 665: Multidimensional Signal Processing.** 0-3-3. Preq., Electrical Engr. 565 or permission of instructor. Representations of signals which are functions of several variables. Multidimensional Z-Transforms and discrete Fourier Transforms. 2-D FIR and IIR filter design and implementation.
- 672: Optimal Control Systems.** 0-3-3. Preq., Electrical Engr. 571 or permission of instructor. Linear system theory. Statistics of random variables. Response to distributed inputs. System analysis and optimum design with multiple inputs and outputs. Optimum inputs.
- 673: Nonlinear Control Systems.** 0-3-3. Preq., Electrical Engr. 571 or permission of instructor. Mathematical models of nonlinear systems. Phase-space analysis. Critical point characterization. Describing functions. Sub-harmonic generation. Stability determination. General solution methods.
- 681: Advanced Topics in Power Systems.** 0-3-3. Preq., Electrical Engr. 581 or permission of instructor. May be repeated with a change in subject matter. Selected topics of current research interest in the field of power systems engineering.

ELECTRO TECHNOLOGY

- 100: Introduction to Electrical Engineering Technology.** 3-0-1. A survey of topics to introduce the student to the profession, the department and the curricula. F,W.
- 160: Basic Electricity.** 0-3-3. An introduction to the fundamental concepts of electricity. F.
- 161: Basic Electricity Lab.** 3-0-1. Coreq., Electro-Technology 160. Practical laboratory exercises to illustrate the material in Electro-Technology 160. F.
- 170: Basic Circuit Theory.** 0-3-3. Preq., Credit or concurrent registration in ET 171 and Math 111. Introduction to DC circuit theory; loop equations, node equations and major network theorems. Single time constant transients. W, Sp.
- 171: Basic Circuit Lab.** 3-0-1. Credit or concurrent registration in Electro-Technology 170. Laboratory companion to Electro-Technology 170. W.
- 180: A-C Circuits.** 0-3-3. Preq., Electro-Technology 170, Math 112. Credit or concurrent registration in Electro-Technology 181. An extension of the concepts developed in Electro-Technology 170, to include alternating current circuits for sinusoidal steady-state analysis. Sp.
- 181: A-C Circuits Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 180. Laboratory companion to Electro-Technology 180. Sp.
- 182: Technical Problems.** 0-2-2. Preq., Math 220. Practical problems in electricity and circuit theory designed to illustrate the use of mathematics as an aid, and to develop judgment in the interpretation of results. F.
- 260: Electronics.** 0-3-3. Preq., Electro-Technology 180. Credit or concurrent registration in Electro-Technology 261. An introductory treatment of solid state devices, concentrating on the ordinary diode and the bipolar and field effect transistors. F.
- 261: Electronics Laboratory.** 3-0-1. Preq., Credit or concurrent registration in Electro-Technology 260. Introductory electronics laboratory, a companion to Electro-Technology 260. F.
- 262: Technical Problems.** 0-2-2. Coreq., Electro-Technology 182, Preq., Math 220. A continuation of Electro-Technology 182, concentrating primarily on problems utilizing the techniques taught in Math 220, applied calculus. F.
- 270: Instrumentation.** 0-3-3. Preq., Electro-Technology 180 or consent of the instructor. Basic measuring devices, meters, bridges, etc. An introduction to the methods used in making accurate measurements. W.
- 271: Instrumentation Laboratory.** 3-0-1. Preq., credit or concurrent registration in ET 270. Laboratory for the study of electrical and electronic controlled instrumentation. W.
- 272: Electronics Applications.** 0-3-3. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 273. Continuation of Electro-Technology 260. The study of semiconductor devices imbedded in passive RLC networks, and their applications in practical situations. F.
- 273: Electronics Applications Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 272. Training in the construction and troubleshooting of solid state electronics circuits. F.
- 274: Computer Programming.** 0-3-3. Preq., Math 111. The logic of computer solutions to problems. Basic programming utilizing Fortran and other popular languages. Applications of computer usage in electro-technology. Sp.
- 280: Electrical Power.** 0-3-3. Preq., Electro-Technology 180. A survey of the power field; the aims, problems and techniques. Future trends. Sp.
- 284: Computers.** 0-3-3. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 285. Digital and analog computer systems, circuits, and maintenance. Sp.
- 285: Computers Laboratory.** 3-0-1. Preq., Credit or concurrent registration in Electro-Technology 284. Practical laboratory exercises in computer circuitry and maintenance techniques. Sp.
- 360: Electrical Power.** 0-3-3. Preq., Electro-Technology 180. Credit or concurrent registration in Electro-Technology 361. Study of techniques and solution to fundamental problems in the electric power industry. Emphasis on practical applications. W.
- 361: Electrical Power Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 360. Companion laboratory to 360. W.
- 370: Integrated Circuits.** 0-3-3. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 371. Applications of integrated circuits, both linear and discrete, in a variety of amplifiers, switching circuits and functional operations. F.
- 371: Integrated Circuits Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 370. Practical laboratory work in the utilization of integrated circuits in active networks, both linear and discrete. F.
- 382: Computer Servicing.** 0-2-2. Preq., Electro-Technology 284. Techniques of fault isolation and repair of digital and analog computers. Preventive maintenance techniques. The theory of maintainability.
- 383: Computer Servicing Laboratory.** 3-0-1. Coreq., Electro-Technology 382. Practical troubleshooting of computer systems.
- 390: Electrical Drafting.** 6-0-2. Preq., Technical Drafting 101. A course in drafting with emphasis on wiring diagrams, electrical standards, codes, etc. F.
- 460: Communication Circuits.** 0-2-2. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 461. The study of circuits used in AM and FM radio, television, and digital data transmission. F.
- 461: Communication Circuits Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 460. Companion laboratory to lecture Electro-Technology 460. Construction of RF amplifiers, modulators, etc. F.

- 465: Circuit Design and Fabrication.** 3-1-2. Preq., ET 370 and ET 390. A student project course in design, layout and fabrication of printed circuits. Sp.
- 468: Electronic Motor Control.** 0-3-3. Preq., ET 469. Application of solid-state devices to the control of power in static and dynamic energy conversion systems. Methods of control in D.C. and A.C. systems. Sp.
- 469: Electronic Motor Control Laboratory.** 3-0-1. Preq., credit or concurrent registration in ET 468. Companion Laboratory to ET 468. Sp.
- 470: Control Systems.** 0-2-2. Preq., Electro-Technology 260. Credit or concurrent registration in Electro-Technology 471. Introductory control systems. A survey of the field, with emphasis on the problems, current solutions, and analytical methods. W.
- 471: Control Systems Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 470. Field trips and laboratory experiments in principles of automatic control systems. W.
- 472: Seminar.** 0-1-1. Preq., senior standing. Discussion of employment, current job market, preparation of personal data sheets, application forms, other placement activities. W.
- 480: Electronic Computers.** 0-3-3. Preq., Electro-Technology 284. Credit or concurrent registration in Electro-Technology 481. Organization, operation, and programming of digital computers on a more advanced level. Basic numerical techniques.
- 481: Electronic Computers Laboratory.** 3-0-1. Credit or concurrent registration in Electro-Technology 480. A workshop in computer methods intended to provide applications of the theory in Electro-Technology 480 lecture.
- 490: Special Problems.** 1-4- (9) hours credit. Preq., consent of instructor. A course to be arranged for the purpose of covering a selected topic of current importance or special interest. Su,F,W,Sp.

ENGINEERING

- 102: Programming for Engineers.** 0-2-2. Preq., Eligible for registration in Mathematics 230. Functional characteristics of calculators and computers; overview of programming languages and systems; FORTRAN; analysis and solution of engineering problems. Su,F,W,Sp.
- 151: Engineering Graphics.** 6-0-2. Beginning graphics for engineers. Su,F,W,Sp.
- 162: Descriptive Geometry.** 0-3-3. Preq., Engineering 151 or Technical Drafting 101. Orthographic representation and solution of space problems.
- 300: European Influence on Engineering.** 7-1-3. Preq., Sophomore standing or consent of instructor. European influence on Engineering theory and practice. Engineering accomplishments in Europe. Impact of engineering on western civilization. Su.
- 401: Engineering Economy.** 0-2-2. Preq., Mathematics 231. Economic analysis of engineering design alternatives.
- 425: Ethics and Professionalism.** 0-1-1. Preq., senior standing or consent of department head. A study of ethics and professionalism as it relates to the engineering profession and the student's career.
- 431: Contracts and Specifications.** 0-2-2. Preq., junior standing or consent of instructor. Legal documents of construction contracts. W.
- 551: Research and Thesis.** Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six semester hours.
- 590: Research and Dissertation.** Registration in any quarter may be for three semester hours credit or multiple thereof. Maximum credit allowed is thirty hours.

ENGINEERING MECHANICS

- 201: Statics.** 0-2-2. Preq., Engineering 151 and Mathematics 220 or 231. (Not open to students who have had EM 211.) Systems of forces and couples; concept and fundamentals of static equilibrium, centroids, friction and moment of inertia. Su,F,W,Sp.

- 203: Dynamics.** 0-3-3. Preq., Engineering Mechanics 201 or 211. Kinematics and Kinetics of rectilinear, rotational, and plane motion. Moment of inertia of mass. Work and power. Principles of impulse and momentum. Su,F,W,Sp.
- 206: Statics.** 0-3-3. Preq., Mathematics 220, Mechanics of rigid bodies. Force systems. Fundamental concepts of static equilibrium. Centroids, moments of inertia and friction. F.
- 207: Strength of Materials.** 0-3-3. Preq., Engineering Mechanics 206. Mechanics of deformable bodies. Stresses and strains. Beam deflections. Column theory. Torsion. W.
- 211: Statics.** 0-3-3. Preq., Engineering 151 and Mathematics 231 or 220. Mechanics of rigid bodies. Resultants and equilibrium of force systems. Centroids, fluid statics, trusses, friction, and moments of inertia. Su, F, W,Sp.
- 301: Mechanics of Materials.** 0-2-2. Preq., Engineering Mechanics 201. Mechanics of deformable bodies. Stress and strain. Torsion and bending. Beams and columns. Su,F,W,Sp.
- 311: Mechanics of Materials.** 0-3-3. Preq., Engineering Mechanics 211 and Math 232. Mechanics of deformable bodies. Stress and strain, torsion, bending, deflection of beams, columns. Su,F,W,Sp.
- 321: Elementary Fluid Mechanics.** 0-3-3. Preq., Engineering Mechanics 203 and Mathematics 232. Properties of fluids, fluid statics. Basic hydrodynamics. Continuity, energy and momentum equations. Steady flow in pipes and open channels. Fluid measurements. Su,F,W,Sp.
- 407: Advanced Strength of Materials.** 0-3-3. Preq., Engineering Mechanics 311 and Math 330. The torsion problem, membrane analogy, cylindrical shells, beams on elastic foundations and the energy methods used in indeterminate structural analysis.

ENGLISH

- 099: Developmental English.** 0-4-4. Concentration on basic skills in grammar, punctuation, spelling, and vocabulary, together with the development of writing skills. Special emphasis on the sentence, summary writing, and paragraph building.
- 101-102: Freshman Composition.** 0-3-3 each. Su,F,W,Sp. (English 101 is prerequisite to English 102.)
- 201-202: Sophomore English-Introduction to English and American Literature.** 0-3-3 each. Preq., English 101-102. Su,F,W,Sp.
- All courses above 202 have 201 or 202 as a prerequisite.**
- 260: Introduction to Technical Writing.** 0-3-3 Preq., English 201 or 202. An introduction to report forms and planning, information sources, technical correspondence, style, and the modes of discourse as applied in technical writing. Su,F.
- 303: Technical Writing.** 0-3-3. General technical writing course, stressing development of technical writing skills; various technical writing assignments, including a technical report. Su, F, W, Sp.
- 308: The Short Story.** 0-3-3. A reading course. Opportunities to write short stories for those who wish to do so.
- 325: Contemporary English and American Poetry.** 0-3-3.Sp.
- 332:* Advanced English Grammar.** 0-3-3. Su,F,W,Sp.
- 336:* Advanced Composition.** 0-3-3. Chiefly expository writing. Su,F,W,Sp.
- 352: The Literature of the Bible.** 0-3-3. A survey of literary genres of the Old and New Testaments, focusing on the poetic and/or narrative art of each.
- 361: The Scientific Method.** 0-3-3 Preq., English 202. The use of the scientific method in technical writing; discussion on analytical thinking and its application in scientific and technical reports.
- 362: Graphics in Technical Writing.** 0-3-3. Preq., English 260 or 303. The theory and practice of using non-verbal materials in written texts; emphasis on kinds of visual presentations and integration of visual and verbal materials.
- 363: Readings in Scientific and Technical Communications.** 0-3-3. Preq., English 260 or 303. A study of the current material

written about technical communication, together with a reading and critical analysis of various technological journals.

- 384: Introduction to Creative Writing.** 0-3-3. Introduction to traditional and contemporary forms of short fiction and poetry through study of selected models. Students required to write in both genre. W.
- 400: Theories of Composition.** 0-3-3. The course is designed to familiarize prospective English teachers with various theories of teaching composition. Su.
- 401: The American Mind.** 0-3-3. (Same as Philosophy 401). Important currents of ideas that have found expression in American literature.
- 403: Chaucer** 0-3-3.
- 404: Milton.** 0-3-3.
- 406: World Masterpieces.** 0-3-3. A survey of major non-English literary texts in the Western Tradition.
- 407: Principles and Techniques of Literary Criticism.** 0-3-3.
- 410: The British Novel.** 0-3-3. Studies the development of the novel from the eighteenth century onwards.
- 413: The Romantic Period.** 0-3-3. Studies the major writers of the age.
- 414: The Victorian Period.** 0-3-3. Studies the major writers of the age.
- 415: Shakespeare.** 0-3-3. The major plays and the poems. (Same as Speech 415.) Su, F, W, Sp.
- 416: Major American Authors (before 1865).** 0-3-3.
- 417: Major American Authors (since 1865).** 0-3-3.
- 419: Contemporary drama.** 0-3-3. American, English and European. (Same as Speech 419.)
- 420: The Continental Novel.** 0-3-3.
- 422: The English Language.** 0-3-3. Primarily a course in the history of the language.
- 423: English Words and Idioms.** 0-3-3. (Same as Philosophy 423.) Rhetoric and logic as applied to critical thinking. Semantics. Exercises in propaganda analysis. Vocabulary building.
- 424: Contemporary Southern Authors.** 0-3-3.
- 429: American Fiction in the Twentieth Century.** 0-3-3.
- 438: Sixteenth Century English Literature (excluding Shakespeare).** 0-3-3.
- 439: Seventeenth Century English Literature (excluding Milton).** 0-3-3.
- 440: Eighteenth Century English Literature.** 0-3-3.
- 460: Advanced Technical Writing.** 0-3-3. Preq., English 260 or 303. A continuation of English 260; emphasis on longer reports and specialized forms of technical writing, such as manuals.
- 461: Technical Writing for Publication.** 0-3-3. Preq., English 260 or 303. The writing of articles for scientific and technical journals, with emphasis on audience analysis and appropriate style; submission of articles for possible publication.
- 462: Technical Editing.** 0-3-3. Preq., English 260 or 303. The work of an editor, including editing a text, format standards and limitations, planning projects, and working with authors, illustrators, and production workers.
- 463: Scientific and Technical Presentations.** 0-3-3. Preq., English 260 or 303. The presentation of technical information to technical and non-technical audiences; emphasis on organization, support, and clarity of presentation; effective use of visual materials.
- 464: Occupational Technical Writing.** 0-3-3. Preq., English 260 or 303. A course designed to enable the technical writer to conduct writing training sessions within the organization and to supervise others engaged in writing tasks.
- 465: Specification, Bid, Grant, and Proposal Writing.** 0-3-3. Preq., English 260 or 303. Discussion of and practice in the writing of specifications, bid, grants, and proposals; emphasis on types, audience analysis, organization, and writing style.
- 466: Technical Writing Internship.** 9-0-3 (6). Preq., permission of the Department Head. On-the-job experience for the technical writing student, intended to give supervised practice under realistic working conditions. Internships are to be arranged individually.
- 467: Special Problems in Technical Communication.** 9-0-3. Preq., English 260 or 303. The selection, study, and writing of special problems. Students will work on individual projects under direct supervision of staff.
- 475: Special Topics.** 0-3-3. A seminar with topic to be designated by the instructor.
- 482: Mythology and Folklore.** 0-3-3. A study of myth and folklore and their relationship to other kinds of literature.
- 484: Advanced Creative Writing.** 0-3-3 (6). Preq., English 384 or instructor's consent. Workshop format includes intensive criticism of student writing in short fiction and/or poetry with emphasis on submission for publication. Sp.
- 491: Advanced Expository Writing.** 0-3-3. An introduction to writing essays and technical reports for professional publication; additional focus on style, format, editing manuscripts, and preparing specification sheets.
- 515: Shakespeare Seminar.** 0-3-3. Preq., English 415 or its equivalent. Study of principal Shakespeare plays, other representative plays, and the principal philosophical writings of the Elizabethan and Jacobean Periods; special attention given to major critical concepts.
- 575: Special Topics.** 0-3-3. Topic designated by instructor. 575 will cover specific research not available for study in 583/584.
- 583: Seminar in British Literature.** 0-3-3 (6). Selected reading and research topics in British literature. F, W, Sp, Su.
- 584: Seminar in American Literature.** 0-3-3 (6). Selected reading and research topics in American Literature to be designated by instructor. Su, F, W, Sp.
- 585: English Teachers' Workshop.** 0-3-3. A course designed primarily for public school teachers of English. Su.
- 591: Introduction to Literary Research and Bibliography.** 0-3-3. Focuses upon methodology of scholarship, stressing various kinds of literary problems and approaches to their solutions; also strong emphasis on descriptive and analytical bibliography.

ENGLISH AS A FOREIGN LANGUAGE

- 101: English as a Foreign Language.** 0-3-3 (9) English sentence structure and pattern practices for non-native speakers of English. Su, F, W, Sp.
- 102: English as a Foreign Language.** 0-3-3 (9) Writing for non-natives speakers of English. Su, F, W, Sp.
- 103: English as a Foreign Language.** 3-0-1 (3) Language laboratory exercises in sentence structure and pattern practices for non-native speakers of English. Su, F, W, Sp.
- 104: English as a Foreign Language.** 3-0-1 (3) Language laboratory exercises in pronunciation and vocabulary for non-native speakers of English. Su, F, W, Sp.
- 201: English as a Foreign Language.** 0-3-3 (9) Pronunciation and word study for non-native speakers of English. Audiolingual drills in pronunciation, recognition practice in vocabulary skills. Su, F, W, Sp.
- 202: English as a Foreign Language.** 0-3-3 (9) Reading skills for non-native speakers of English. Su, F, W, Sp.
- 203: English as a Foreign Language.** 0-3-3. Language laboratory exercises in listening comprehension skills for non-native speakers of English. Su, W, F, Sp.
- 204: English as a Foreign Language.** 3-0-1 (3) Language laboratory exercises in conversation skills for non-native speakers of English. Su, F, W, Sp.
- 350: Methods for Teaching and Testing in ESL.** 0-3-3. Theories and techniques for teaching English as a Second Language in various cultural and educational settings; language testing methods; language laboratory. Su.

351: Methods for Teaching and Testing in ESL. 0-3-3. A continuation of EFL 350. W.

501: Problems in Teaching English as a Second Language. 0-3-3 (6). Preq., EFL 350-351 or equivalent. Seminar on analysis of problems in phonetic discrimination, and presentations and evaluation of reading and writing English as a second language. May be repeated once.

FAMILY AND CHILD STUDIES

100: Marriage and Family Living. 0-3-3. Significant factors for successful marriage, marital adjustment, and family living. Su, F, W, Sp.

117: Women Studies. 0-3-3. Roles of women in families, education, employment and the community. Influences on changing roles. Emphasis on career opportunities and personal development.

201: Introduction to Child and Family Development. 0-3-3. Basic principles and sequences in human development from prenatal period through aging years. Emphasis on developmental tasks, forces influencing development, and the family life cycle.

300: Parenting. 0-3-3. Study of the parenting role. Emphasis on parent-child interaction and relationships as they influence growth. Open to non-majors.

301: Early Childhood Development. 3-2-3. Preq., Psychology or Family & Child Studies 201. The development of young children. Theory and practice are correlated through readings, class discussions, and nursery school laboratory experiences.

307: Family Interpersonal Relationships. 0-3-3. The study of interaction between individuals with application to family dynamics, personal relationships, professional interaction, and job competency.

311: Pre-reading in Early Childhood Education. 0-3-3. Development of early language skills. Emphasis on the preschool language arts curriculum as preparation for reading. F.

400: Contemporary Family Living. 0-3-3. Family living concerned with stages of family life with emphasis on issues affecting families. W.

401: Creative Activities and Organization of Preschool Programs. 0-3-3. Preq., Family & Child Studies 301 or consent of instructor. Organization of preschool programs with emphasis on creative activities, materials and facilities. F.

410: Multi-Cultural Family Studies. 0-3-3. Cross-cultural overview of family patterns, child rearing, nutrition and food habits, housing, and fashion trends. Su.

411: Methods in Early Childhood Education. 3-2-3. Preq., Family & Child Studies 301. Important factors in planning for preschool children. Emphasis on objectives, planning nursery school experiences, and evaluation. W.

420: Issues in Family Life Education. 0-3-3. Methodology of teaching current family issues in family education programs. Development of family life educator skills with emphasis on parent education and marital enrichment.

421: Student Teaching in Early Childhood Education: Nursery School. 16-1-6. Preq., Family & Child Studies 301 and 411. An intensive practical experience in supervised nursery school teaching. F,W,Sp.

431: Infant Development. 0-3-3. Preq., Psychology 204 or equivalent. Prenatal and infant development. Emphasis on influence of family and other caregivers.

451: The Puppetry Arts and Creative Teaching. 0-3-3. In-depth study of puppets and the puppetry arts with practical experiences in techniques and uses of puppets as a tool in teaching, therapy and creativity.

461: Administration of Early Childhood Education Programs. 0-3-3. Planning and administering day care centers and early childhood education programs. Sp.

500: Improving Instruction in Family Relations. 0-3-3. A study of the methods of teaching family relations including selection and organization of subject matter. Special attention will be given to the preparation of units of work and lesson plans.

501: Contemporary Issues in Infancy and Preschool Years. 0-3-3. Seminar in current research in child development with emphasis on the infancy and preschool years.

510: The Family in Middle and Later Years. 0-3-3. Study of changes, needs and adjustments during the middle and later years of the family.

520: Interpersonal and Family Dynamics. 0-3-3. Study of dynamics of family interaction and relationship functioning. Emphasis on current research and issues confronting contemporary families.

FAMILY MANAGEMENT AND CONSUMER STUDIES

236: Household Equipment. 0-3-3. Proper selection, use, and care of equipment. Wiring and lighting of the home, kitchen planning.

246: Microcomputers in Home Management I. 3-2-3. An introduction to the use of microcomputers and microprocessor controlled appliances for more effective management of home and family related tasks.

256: Personal and Family Management. 0-3-3. A systems approach to the management of personal and family resources with emphasis on time and energy. F,W,Sp.

416: Home Furnishings. 0-2-2. A study of period furniture and styles, china, glassware, silverware and other accessories for the home.

426: Housing. 0-3-3. Physical aspects of planning a house. History of housing. Social aspects such as zoning, government regulations, etc. Sp.

436: Home Management. 8-1-3. Preq., Food & Nutrition 212, Family Management & Consumer Studies 256, and advanced junior standing. Planning, coordinating, and evaluating all phases of individual and home management.

445: Microcomputer Applications for Personal Use. 0-1-1 (3). Selected topics relating to the use of microcomputer in home and family management. Su.

446: Microcomputers in Home Management II. 0-3-3. Preq., Home Economics 246. Advanced study in the use of microcomputers in home management.

456: Consumer Decision Making. 0-3-3. Behavior of the consumer with reference to economic decision making and expenditure patterns relevant to current lifestyles.

FASHION AND TEXTILES

118: Apparel Construction. 6-0-2. Principles of basic construction and fitting and the use of commercial patterns to create clothing suitable to the individual.

119: Apparel Evaluation. 0-2-2. Introduction to the study of analysis of ready-to-wear and accessories from a retail and consumer viewpoint.

128: Apparel Selection. 0-2-2. Consideration of appropriate and becoming clothing for individuals with recognition of social, economic, and psychological factors. Design and manufacture of clothing. F,W,Sp.

158: Survey of the Fashion Industry. 0-2-2. Preq., Fashion & Textiles 128. Overview of fashion industry and fashion marketing techniques. Emphasis on history, design, production, and retail phases of business. W,Sp.

218: Consumer Clothing. 3-0-1. Preq., Fashion & Textiles 118. Development of judgment, creativity and skill in construction. Emphases on use of special fabrics, decorative techniques and construction techniques.

219: Textiles. 0-3-3. Study of properties and production of textile fibers. Consumer approach to fabric selection, use and care.

228: Consumer Analysis of Fashion. 0-2-2. A consumer and merchandising approach to clothing needs of the family and other selected groups. Open to non-majors.

- 268: Fashion Design I.** 0-2-2. Preq., Art 175, Fashion & Textiles 118 or 119, and 219. Application of principles related to the creation, fabrication and execution of apparel design.
- 308: Fashion Buying.** 0-3-3. Preq., Fashion & Textiles 158, Marketing 235. Buying function in fashion retail organizations. Includes merchandising concepts essential for buyers.
- 338: Tailoring.** 6-0-2. Preq., Clothing construction skill, Fundamental construction processes reviewed and basic principles of tailoring applied in the construction of tailored garments.
- 348: Fashion Merchandising and Computer Management.** 1-2-2. Preq., Fashion & Textiles 308. Procedures and task management for the fashion retailer through computer application. W.
- 358: Fashion Merchandising Selling Experience.** 6-1-3. Preq., Fashion & Textiles 348, Marketing 235 and 307 or consent of instructor. Supervised experience in salesmanship and other phases of merchandising in retail firms cooperating with the College of Home Economics.
- 388: Fashion Coordination and Promotion.** 0-3-3. Coordination of buying, selling, promoting, display, and advertising functions in retail store merchandising. Sp.
- 419: Textile Products for Apparel and Home Furnishings.** 0-3-3. Preq., Fashion & Textiles 219 or consent of instructor. Study of textile products in relation to end-use, product quality, technology, trade regulations, and interplay of fashion for apparel and home furnishings industries. Sp.
- 428: Fashion Design II.** 6-1-3. Preq., Fashion & Textiles 268, or consent of instructor. Flat pattern and draping techniques in developing original design. Emphasis on appropriate use of line, color, and texture.
- 438: Historic Costume.** 0-3-3. Development of costume from ancient Egypt through the 19th century, with emphasis on social, economic, and aesthetic influences of its design. W.
- 488: Visual Merchandising.** 3-2-3. Preq., Art 175 or 115, Fashion & Textiles 388, Family Management & Consumer Studies 416. Marketing 235 or consent of instructor. Promotion of products through visual merchandising including fashion show production, special events, display, selling techniques and other promotional activities in industry and retailing. F.
- 498: Fashion Merchandising International.** (Pass-Fail) 3 to 12 hours undergraduate credit and 3 to 9 hours graduate credit. European fashion study tour (3 hours undergraduate or graduate credit.) Sp. Supervised paid work experience in metropolitan fashion center (9 hours undergraduate or 6 hours graduate credit. F,Sp.) Applications required.
- 508: Advanced Techniques in Specialized Clothing Construction.** 6-1-3. A study of clothing production and consumer motivation. Special problems in clothing construction are chosen to incorporate new techniques.
- 509: Advanced Textiles.** 0-3-3. A study of recent trends and developments in textiles from the standpoint of their chemical composition and physical properties.
- 528: Consumer Motivation and Factors in Fashion.** 0-3-3. Relationship of consumer behavior to fashion; analysis of factors relative to production, distribution, and consumption of apparel and textiles.

FINANCE

- 100: Family Financial Management.** 0-3-3. Specific family financial decisions, including budgeting, insurance, home purchase of rent, consumer credit, personal income tax, lifetime financial planning. F,W,Sp.
- 201: Basic Sales Financing.** 0-3-3. Financing consumer sales including sources of credit, interest and payout computations, wholesale financing, truth in lending, bad debts, and legal aspects. (Associate degree credit only in CAB).
- 318: Business Finance.** 0-3-3. Preq., Economics 202, 205, or 215 and Accounting 205 or 210 and junior standing. A study of the methods of financing a business firm, including sources and applications of funds. Su,F,W,Sp.
- 319: Intermediate Financial Management.** 0-3-3. Preq., Finance 318. Advanced practices of financial management are developed. Financial models used in decision-making and their application to major areas of business finance are emphasized. F.
- 330: Risk and Insurance.** 0-3-3. A comprehensive study of risk and riskbearing, including insurance and non-insurance methods of handling a risk; introduction to the fields of life, disability, property, and casualty insurance. F,Sp.
- 412: International Finance.** 0-3-3. Preq., Finance 318. A study of the various modes of financing international trade, including international financial organizations; an analysis of exchange rates, foreign investments, multinational firms, and international banking.
- 414: Investments.** 0-3-3. Preq., Finance 318. Analyses of investments in common stocks, bonds, and other financial assets; sources of information for the investor; analysis of firms' financial statements; classes of investments. F,Sp.
- 422: Bank Management.** 0-3-3. Preq., Finance 318. Problems in organization, operation, and management of commercial banks, with special emphasis on credit banking. Su,W.
- 423: Bank Management: Cases, Policies and Practices.** 0-3-3. Preq., Finance 318. Application of decision-making procedures to bank financial management situations, including evaluation of bank performance, capital acquisition, liquidity, and loans. F.
- 425: Money Markets, Capital Markets and Financial Institutions.** 0-3-3. Preq., Finance 318. A survey of the markets in which funds are traded; a survey of the lending and investing characteristics of selected financial institutions. Sp.
- 427: Financial Forecasting.** 0-3-3. Preq., Economics 205 or 215 and Finance 318. Financial forecasting under conditions of economic fluctuations involving sales in industries and firms within those industries and their effect on the financial needs and liquidity of firms.
- 430: Advanced Financial Management.** 0-3-3. Preq., Finance 318. The case method is used to apply decision-making procedures to realistic problems in financial management. Sp.
- 431: Life Insurance.** 0-3-3. A comprehensive study of personal and group life, accident and health, hospitalization, old age, survivors and disability insurance and annuities. F.
- 432: Property Insurance.** 0-3-3. A comprehensive study of fire, burglary, robbery, forgery, liability, inland and ocean marine insurance, and surety and fidelity bonds. W.
- 435: Private Pensions, Group Insurance and Estate Planning.** 0-3-3. Analysis of pension regulations, design, and funding, actuarial considerations, integration with Social Security benefits, survey of group insurance, and implications for estate planning. Sp.
- 442: Principles of Real Estate and Land Economics.** 0-3-3. Land utilization, city growth, land development, legal processes and transactions, real estate marketing, financing and financial institutions, taxes, condemnation, planning and zoning. F,Sp.
- 443: Appraisal.** 0-3-3. Application of value theory and principles to real estate values; professional appraisal principles methodology. Corresponds to Appraisal I, American Institute of Real Estate Appraisers. W.
- 444: Appraisal of Urban Properties.** 0-3-3. Preq., Finance 443. Appraisal case studies and practice in appraisal of commercial and industrial properties; generally corresponds to Appraisal II, Urban Properties, American Institute of Real Estate Appraisers. Sp.
- 445: Real Estate Finance.** 0-3-3. Finance principles applied to real estate. Sources of funds, legal and financial instruments, and analytical methods for decision making. W.
- 515: Financial Management.** 0-3-3. The study of a financial manager's role in financial planning, acquisition and management of funds for a business firm.
- 516: Financial Management: Policies and Practices.** 0-3-3. Application of decision-making procedures to financial management problems. Student is required to solve case problems and manage the financial affairs of computer simulated firm.

- 517: Capital Budgeting Seminar.** 0-3-3. Preq., Finance 515. A systematic and thorough treatment of the theory and practice of capital expenditure management, emphasizing case analysis and employing a quantitative format.
- 518: Advanced Commercial Banking.** 0-3-3. Advanced studies in contemporary banking practices with special emphasis in credit analysis. Structuring of loans in specialized commercial lending areas as well as the entire credit granting decision process will be examined.
- 520: Seminar in Financial Theory I.** 0-3-3. Preq., Finance 515 (also, desirable that student has had an intermediate or advanced economics course). Examination and application of contemporary financial theory and analysis relating to business finance.
- 521: Seminar in Financial Theory II.** 0-3-3. Preq., Finance 520. Detailed study of both classic and contemporary literature which provides students with a cross-section of modern theoretical developments in the field of business finance.
- 525: Seminar in Investments.** 0-3-3. Study of the theories and techniques of investment analysis for purposes of evaluation and selection of investments.

FOOD AND NUTRITION

- 103: Nutrition and Weight Control.** 0-1-1 (3). Designed for non-majors. Most effective when taken with a health and physical education activity course. Personalized weight control program based on behavior modification, energy balance, and recommended nutrients. May be repeated for credit.
- 112: Basic Food Science.** 6-1-3. Use of food science principles in food selection and preparation procedures.
- 202: Collegiate Cooking.** 3-2-3. Designed for non-majors to assist in preparing appetizing and nutritious meals using basic techniques and managing time, energy, and money.
- 203: Nutrition.** 0-3-3. Functions of various nutrients and their interrelationships in children and adults with emphasis on personal food habits and selection. Su,F,W,Sp.
- 207: Professional Dietetics.** 0-1-1. Dietitian's role in providing quality nutritional care for individuals and groups of people. F.
- 212: Food and the Consumer.** 6-1-3. Preq., Food & Nutrition 112. Considerations in food management, including convenience, legislation, consumer acceptability, spending patterns, and lifestyles.
- 213: Introduction to Diet Therapy.** 0-3-3. Preq., Food & Nutrition 203. Introduction to dietary modification throughout the human life cycle and in disease states.
- 222: Food Cost Control.** 0-2-2. Records and analysis as applied in food cost control in the food service organization.
- 223: Nutrition Education.** 0-2-2. Basic principles of nutrition with special emphasis on the school-age child. Techniques of presenting nutrition information to children. (Planned for non-majors.) Su,F,W,Sp.
- 233: Creative Experiences in Nutrition.** 3-0-1. Preq., or Coreq., Food & Nutrition 223 or 203. Application of nutrition principles to the preschool and school age child. Emphasis on nutrition related activities for various age groups.
- 242: Food Service Supervision.** 3-2-3. Problems in directing, supervising and controlling personnel, sanitation, purchasing, and storage for small food service organizations.
- 243: Health Care Delivery Systems.** 0-3-3. Aspects of current health care delivery systems in the United States, with a focus on the delivery of nutrition care services. F.
- 282: Foodservice Field Experience.** 3-9 hours credit. (18). Preq., Food & Nutrition 352 and consent of the instructor. Supervised experience in commercial, institutional foodservice.
- 352: Quantity Food Production.** 0-2-2. Coreq., Food & Nutrition 372. Preq., Dietetic major or consent of the instructor. Quantity food preparation and service, menu planning, and methods of purchasing for food service systems.
- 362: Computer Assisted Food Service Management.** 3-1-2. Computer applications in food service management and operations research.
- 372: Quantity Food Production Laboratory.** 8-0-2. Coreq., Food & Nutrition 352. Quantity food production supervised experience.
- 382: Introduction to Food Service Organization and Administration.** 4-0-1. Preq., Dietetic major or consent of the instructor. Application of organization and administration principles to an institutional food service setting.
- 404: Nutrition Theory.** 0-3-3. Preq., Chemistry 132. Dietetic major or consent of instructor. Food & Nutrition 433. Physical and chemical significance of various nutrients and their interrelationships and applications to humans.
- 412: Experimental Foods.** 6-1-3. Preq., Food & Nutrition 112 and 212. Chemistry 131 or consent of the instructor. Study of the chemical and physical nature of foods. Individual investigations of selected problems.
- 414: Nutrition Theory.** 0-3-3. Preq., Chemistry 132. Coreq., Food & Nutrition 483. A continuation of Food & Nutrition 404. W.
- 423: Nutrition Theory.** 0-3-3. Preq., Chemistry 132. Coreq., Food & Nutrition 493. A continuation of Food & Nutrition 414. Sp.
- 433: Nutrition Theory Laboratory.** 3-0-1. Coreq., Food & Nutrition 404. Field experience applications of normal and clinical nutritional theory to humans.
- 437: Introduction to Clinical Practice.** 20-2-6. Developing practical skills in administrative and therapeutic dietetics. Supervised experience directed by registered dietitian. Applications required.
- 447: Dietetic Field Experience.** 40-1-9. Application of knowledge in administrative and therapeutic dietetics in the clinical setting. Supervised experience directed by registered dietitian. Applications required.
- 452: Food Service Systems Administration.** 0-2-2. Principles of organization and management applied to food service systems. F.
- 453: Client Nutritional Care.** 0-2-2. Clinical nutrition used in the treatment of disease conditions with emphasis on individualized patient care. F.
- 454: Food Service Field Experience.** 13-0-4. Field experience as an administrative dietitian in food service systems. F.
- 455: Nutritional Care Field Experience.** 13-0-4. Field experience as a clinical dietitian in health care facilities.
- 462: Food Systems Administration Seminar.** 0-2-2. Preq., Food & Nutrition 452. A continuation of Food & Nutrition 452.
- 463: Client Nutritional Care.** 0-2-2. Preq., Food & Nutrition 453. A continuation of Food & Nutrition 453. W.
- 464: Food Service Field Experience.** 13-0-4. Field experience as an administrative dietitian in food service systems. W.
- 465: Nutritional Care Field Experience.** 13-0-4. Field experience as a clinical dietitian in health care facilities. W.
- 473: Clinical Dietetics.** 16-0-5. Field experience as a clinical dietitian in health care facilities. Sp.
- 474: Dietetic Seminar.** 0-2-2. current professional literature and trends. Sp.
- 482: Food Service Systems Administration.** 16-0-5. Field experience as an administrative dietitian in food service systems. Sp.
- 483: Nutrition Theory Laboratory.** 3-0-1. Coreq., Food & Nutrition 414. A continuation of Food & Nutrition 433. W.
- 493: Nutrition Theory Laboratory.** 3-0-1. Coreq., Food & Nutrition 423. A continuation of Food & Nutrition 483. Sp.
- 503: World Nutrition Problems.** 0-3-3. A study of world wide nutritional problems with special emphasis on recent research in this field. In addition to class work, each student makes an independent investigation of one topic in the field of nutrition. Open to non-majors and especially recommended for teachers.
- 512: Food Science and Technology.** 0-3-3. Recent developments in science and technology underlying current practices in quality preservation, and problems in nonbacterial spoilage

mechanisms of food. Includes survey of freeze drying, irradiation, antibiotics, antioxidants, enzymes, food additives, and packaging.

- 523: Recent Advances in Client Nutritional Care.** 0-3-3. Preq., Food & Nutrition 423. Current developments in normal nutrition, nutritional assessment and diet therapy.
- 532: Food Service Organization and Management.** 0-3-3. Preq., Food & Nutrition 342. Quantity food service management utilizing financial controls and computer assistance.
- 533: Vitamins and Minerals in Human Nutrition.** 0-3-3. Preq., Food & Nutrition 423. Sources, properties and functions of vitamins and minerals in human nutrition.
- 562: Trends in Food Systems Administration.** 0-3-3. Preq., Food & Nutrition 352. Seminar on current topics in food systems administration with emphasis on students' areas of interest.

FOREIGN LANGUAGES

- 390: Language and Cultural Contexts.** 0-3-3. Preq., consent of instructor. Concepts of language and culture. Interrelationship between language and culture. Problems in intercultural communication. Processes of language acquisition and cultural adaptation. Required for international students. Su,F,W,Sp.

FOREIGN STUDIES

- 101: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su
- 201: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su.
- 301: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su.
- 401: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su.
- 501: Special Academic Studies.** 0-3-3. Special academic studies conducted in foreign countries. Su.

FORESTRY

- 101: General Forestry.** 0-2-2. An introduction to forestry, wood utilization, relations to land management, and the uses of natural resources in furnishing goods and services.
- 202: Forest Fire.** 0-2-2. Forest fire management, protection, and control.
- 205: Dendrology.** 3-1-2. Preq., Botany 101, 104 and Forestry 101. The identification, classification, characteristics, and distribution of the principal forest trees of the United States, with emphasis on conifers.
- 206: Dendrology.** 3-1-2. A continuation of Forestry 205, with emphasis on hardwoods and spring and summer characteristics.
- 213: Forestry Principles.** 3-2-3. For non-forestry majors. Study of forestry with emphasis on its application and correlation with agriculture, wildlife, and other fields.
- 301: Silviculture; Silvics.** 3-2-3. Preq., Agronomy 302. Factors affecting the growth of trees and stands.
- 302: Silviculture; Practice.** 3-2-3. Preq., Forestry 301. Reproduction methods, treatments, and improvements of trees and stands.
- 303: Regional Silviculture.** 0-2-2. Preq., Forestry 302. An assessment of the significant biological, physical and economic qualities of the forest regions of the U.S. and their effect on silvicultural practices.
- 305: Wood Technology.** 3-2-3. Preq., Forestry 205 and 206. Identification, properties, and use of commercial woods.
- 306: Forest Measurements.** 3-2-3. Preq., Mathematics 111 and 112. Measurements of tree and forest volume, growth and yield, and products.
- 312: Forest and Forest Products Entomology.** 5-1-2. The study of forest entomology in relation to forest management and forest protection.
- 313: Forest and Forest Products Pathology.** 3-2-3. The important diseases of forests and forest products.
- 314: Wildlife Habitat Evaluation and Management in Southern Forest.** 3-2-3. Preq., Forestry 213 or consent of instructor. Methods of sampling, evaluating and modifying forest ecotypes for the benefit of wildlife species.
- 315: Forest Measurements.** 2 credit hours. Preq., Forestry 306. Execution of forest surveys; techniques of growth measurement; determination of volume of trees and stands.
- 316: Forest Surveying.** 3 credit hours. Preq., Mathematics 112. Property surveys, topographic mapping, layout of forest roads and trails; lumber structures.
- 320: Tree and Forest Development.** 3 credit hours. Silviculture field procedures. Practical use of various silvicultural techniques in development of forest stands.
- 321: Land Use.** 2 credit hours. Land use in the Southern Forest Region.
- 322: Bottomland Hardwoods.** 2 credit hours. Silviculture management and utilization of hardwoods of the Southern Forest Region.
- 340: Wood Processes.** 3 credit hours. Conversion of trees into usable products, harvesting techniques, machinery, and milling methods.
- 341: Bonding and Finishing of Wood.** 3 credit hours. Adhesive and cohesive properties of glues and finishes.
- 401: Forest Management.** 3-2-3. Preq., Summer Camp. Principles and planning in forest management.
- 403: Forest Finance.** 0-3-3. Preq., Forestry 409. The economic and financial considerations applying to forestry.
- 405: Forest Soils.** 3-2-3. Preq., Agronomy 200, 202. An overview of forest soil principles and their application.
- 407: Forest Products.** 3-2-3. The uses of the forest crop other than lumber and its conversion into finished commodities.
- 408: Seasoning and Preservation.** 3-2-3. Preq., Forestry 305 and 407. Theory and practice of air seasoning and kiln drying of forest products. The basis of wood preservation, preservatives, and methods of application.
- 409: Forest Economics.** 0-3-3. Preq., Summer Camp. Forests and their relation to economic, industrial, and social problems.
- 410: Forest Policy.** 0-3-3. The basic principles and policies of federal, state, and private forestry.
- 411: Forest Recreation.** 0-2-2. Forestry and nonforestry majors. Recreational use of forests and wild lands. Social, physical, and spiritual benefits of forest recreation. Forest recreation in the economy of the nation.
- 412: Forest Tree Improvement.** 0-2-2. Methods of improvement of forest trees by use of modern plant breeding techniques.
- 414: Lumber and Plywood.** 3-1-2. Preq., Forestry 305 and 407. Manufacturing plant layout, veneers, ply and laminated products, hardwood and softwood lumber grades, and utilization of residues.
- 416: Logging.** 3-1-2. Preq., Forestry 305 and 407. Logging methods, felling and bucking, skidding, loading and hauling.
- 418: Land Allocation and Resource Management.** 0-3-3. The socio-economic-political policies and programs concerning the allocation of land and the management of natural resources.
- 420: Problems.** 1-3 semester hours credit. Preq., approval of the School Director. Special problems in forestry and wood utilization correlated with management of land and natural resources.
- 422: Seminar.** 0-1-1. Preq., Senior standing. Review of research methods and programs.

FRENCH

- 101-102: Elementary French.** 0-3-3 each. Conversation, reading and grammar. Su,F,w,Sp.

- 201-202: Intermediate French.** 0-3-3 each. Preq., French 102 or equivalent. Conversation, reading, grammar and culture. Su,F,W,Sp.
- 203: The Short Story in France.** 0-3-3. Preq., French 202 or equivalent. A continuation of elementary French, with emphasis upon reading. Su,F,W,Sp.
- 204: French in Multicultural Contexts.** 0-3-3. Preq., French 202 or equivalent. Intercultural communication in French. Review of linguistic, cultural and sociolinguistic aspects of French-speaking areas. Sp.
- 304-305: Survey of French Literature.** 0-3-3. Preq., French 202 or permission of instructor. Required for major in French. A survey of French literature from the Middle Ages. F, W, even.
- 308: French Civilization.** 0-3-3. Preq., French 202 or instructor's consent. Lectures and reading in history, geography, language, arts, general culture of French lands. W.
- 310: French Folklore and Traditions.** 0-3-3. Preq., French 202 or instructor's consent. Traditions, folklore, folk heritage, children's literature of French lands. Su.
- 390: Francophone Children's Literature.** 0-3-3. Preq., French 203 or equivalent. A study of French-speaking children's stories, songs, rhymes and games. F.
- 400: The Drama in France.** 0-3-3. Preq., French 202 or permission of instructor. A study of the drama in France up to 1914, with reading of outstanding examples. Sp, odd.
- 404: Contemporary French Literature.** 0-3-3. Preq., 15 hours of French plus French 306 or 307, or permission of instructor. A study of French literature from 1914 to the present with reading of selective works. F, even.
- 405: The French Language.** 0-3-3. Preq., French 202 or permission of instructor. General characteristics of the language and intense review of grammar. Sp, odd.
- 417: The Novel in French.** 0-3-3. Preq., 15 hours of French plus French 306 or 307, or permission of instructor. A study of the novel in France up to modern times, with reading of outstanding examples. Sp, odd.
- 450: The French Language.** 0-3-3. Preq., consent of instructor. General characteristics of the language and intense review of grammar. Sp, odd.
- 470: French Phonetics and Oral Reading.** 0-3-3. Preq., French 202 or permission of instructor. Required for major in French. Sp, odd.
- 480: Commercial French.** 0-3-3. Preq., consent of instructor. Study of business practices and regulations of France and Canada with emphasis on using common commercial forms. Sp.
- 500: The Drama in France (19th & 20th centuries.)** 0-3-3. Preq., French 307 or consent of instructor. A study of major French plays: the Romantic through the contemporary period.
- 512: Seminar in French Literature of the Middle Ages.** 0-3-3. Preq., consent of the instructor. Analysis of selected French literary works of the Medieval period.
- 513: Seminar in French Literature (1660 to date.)** 0-3-3. (6). Preq., Consent of instructor. Analytical study of one major author or group of authors whose works are related.
- 517: Civilization Francaise.** 0-3-3. Preq., Consent of instructor. A study of the French cultural contribution to world civilization throughout history.
- 519: Independent Study.** 0-3-3 (6). Preq., Consent of Committee. Students will work independently taking into consideration individual needs and interests on a topic to be determined in collaboration with the course instructor.
- 230: World Human Geography.** 0-3-3. A survey of the people and places of the world. Su,F,w,Sp.
- 250: Geographical Methods and Techniques of Research.** 0-3-3. An introduction to the fundamentals of library, graphic, and field methods and techniques utilized in the field of geographical research. Sp.
- 260: Conservation of Natural Resources.** 0-3-3. A study of the conservation of soils, minerals, forests, water, wildlife, human resources. F,W,Sp.
- 305: Geography of Anglo-American.** 0-3-3. A study of the natural environment, resources, and cultural patterns of the major geographic regions of the United States and Canada. F, even.
- 310: Geography of Louisiana.** 0-3-3. Open only to junior senior, and graduate students. The climate, natural regions, and resources of Louisiana; cultural development; sources and distribution of the population; settlements and agricultures. Su,W.
- 314: Geography of Middle America and the West Indies.** 0-3-3. Physical, human, and economic geography of Mexico, Middle America, and the West Indies. F, even.
- 315: Geography of South America.** 0-3-3. Physical, human, and economic geography of South America. W, even.
- 320: Geography of Asia.** 0-3-3. Physical and human geography of Asia. Sp, even.
- 324: Geography of Africa.** 0-3-3. Physical and human geography of Africa. Sp, odd.
- 330: Geography of Australia.** 0-3-3. Physical and human geography of Australia, New Zealand, and the Pacific Islands, F, odd.
- 335: Economic Geography.** 0-3-3. A world survey of economic geography. W, odd.
- 360: Geography of Europe.** 0-3-3. Physical and human geography of Western and Central Europe, and the Mediterranean basin. Sp, even.
- 365: Geography of the Soviet Union.** 0-3-3. Physical and human geography of the Soviet Union. W, odd.
- 374: Elements of Weather and Climate.** 0-3-3. A survey of the basic elements of weather and climate including temperature, barometric pressure, precipitation, and the interaction of these elements. F, odd.
- 375: Climatology.** 0-3-3. Preq., Geography 203, 374, or permission of the instructor. A survey of the climatic regions of the world and the controlling factors of weather. W, even.
- 380: Cartography.** 0-3-3. Elements of map interpretation and construction; interpretation, use and construction of graphs. Sp, odd.
- 400: Elements of the Cultural Landscape.** 0-3-3. Recognition, description, analysis and interpretation of elements of the cultural landscape. Sp.
- 501: Physical and Cultural Elements of Geography.** 0-3-3.

GEOLOGY

- 111: Physical Geology.** 0-3-3. Igneous, sedimentary, and metamorphic rocks; erosion of the earth by streams, oceans, winds, glaciers; phenomena of mountains, volcanoes, earthquakes; and the earth's interior. Su,F,W,Sp.
- 112: Historical Geology.** 0-3-3. Preq., Geology 111. History of the earth as revealed in the character and fossil content of rocks. Su,F,Sp.
- 121: Physical Geology Laboratory.** 3-0-1. Preq., registration or credit in Geology 111. Identification of minerals and rocks. Study of topographic maps and physiographic features shown thereon. Su,F,W,Sp.
- 122: Historical Geology Laboratory.** 3-0-1. Registration or credit in Geology 112 and 121. Introduction to fossils, geologic maps, and the geologic history of selected portions of North America. F,W.
- 200: Introduction to Oceanography.** 0-3-3. A survey of the oceans; their nature, structure, origin, physical features, circulation, composition, natural resources, and relationship to the atmosphere and solid earth. Su.
- 200: Introduction to Geography.** 0-3-3. A survey of the field's scope, major concepts and methods of analysis and their relevance to present-day problems. F,W,Sp.
- 203: Physical Geography.** 0-3-3. Fundamentals of physical and biogeography with an emphasis on world-wide distributions of patterns and processes. Su,F,W,Sp.

- 209: Mineralogy.** 3-2-3. Preq., Geology 111, 121, Chemistry 102, 103. Crystallography and descriptive mineralogy. Occurrence, associations, and uses of minerals. F.
- 210: Mineralogy.** 3-2-3. Preq., Geology 209. Basic principles and techniques in the use of the petrographic microscope to determine the optical properties of minerals in oil immersion mounts and thin sections. W.
- 211: Petrology.** 3-2-3. Preq., Geology 210. Introduction to the formation and classification of rocks. Identification of rock types in hand specimen and in thin section under the petrographic microscope. Sp.
- 302: Introduction to Paleogeology.** 3-2-3. Preq., Geology 112, 122. Survey of invertebrate paleontology, phylum Protozoa through phylum Arthropoda. History of the science, rules of nomenclature, and environment of lower animals. W.
- 303: Sedimentology** 3-2-3. Preq., Geology 111, 112, 121. Statistics 200. Origin, composition, properties and classification of sediments and sedimentary rocks. Fluid flow, sedimentary structures and diagenesis. F.
- 305: Stratigraphy.** 0-3-3. Preq., Geology 303. Depositional environments, sedimentary facies, correlations, basin analysis and plate tectonics. W.
- 314: Computer Applications in Geology.** 0-3-3. Preq., Engr. 102, Statistics 200. Application of statistical procedures to the solution of geological problems utilizing departmental microcomputers and the university main frame computer. Sp.
- 315: Structural Geology.** 3-2-3. Preq., Geology 111, 112, 121, Mathematics 112 and Engineering 151. The recognition, representation, interpretation, and mechanics of rock deformation. Sp.
- 316: Map Interpretation.** 6-1-3. Preq., Geology 305 and 315. Interpretation of topographic maps, aerial photographs, geologic maps and geologic cross sections. Sp.
- 317: Engineering Geology.** 3-2-3. Materials of the earth's crust and their physical and chemical properties which affect foundation, surface and subsurface waters, and excavations. W.
- 318: Environmental Geology.** 0-3-3. Preq., Geology 111 or consent of instructor. Human interaction with geological processes: river flooding, coastal hazards, landslides, earthquakes, volcanic hazards, water supply, waste disposal. Special sections on land use planning. Sp, even years.
- 320: Summer Field Course.** 6 hours credit. Preq., Geology 211, 302 and 316, English 303. Course work at the Louisiana Tech geology camp.
- 402: Petrography.** 6-1-3. Preq., Geology 211. Study of rocks in thin section using the petrographic microscope.
- 408: Subsurface Methods.** 3-2-3. Preq., Geology 305, 315, 413 and Computer Science 102. Correlation of subsurface horizons utilizing drill cores and cuttings, mechanical well logs, and computer technology. W.
- 412: Geomorphology.** 0-3-3. Preq., Geology 111, 112. Study of the earth's landforms with emphasis on the weathering, mass wasting, fluvial, wind, marine, and glacial processes that formed them. Sp, odd.
- 413: Petroleum Geology.** 0-3-3. Preq., Geology 315. Study of the origin, migration, and accumulation of petroleum. Reservoir characteristics and types of petroleum-bearing rock structures emphasized. F.
- 420: Directed Study of Geologic Problems.** 1-3 hrs credit. Preq., senior standing. Special topics within the student's field of interest. Maximum 3 hrs credit. Su,F,W,Sp.
- 421: Micropaleontology.** 3-2-3. Preq., Geology 302. Study of microfossils used in correlation of well cuttings and outcrop samples, especially foraminifera. Sp.
- 442: Geophysical Methods.** 3-2-3. Preq., Physics 210, Geology 305, 315, 408, Math 230. Introduction to the elementary theory, computation fundamentals, and basic field practice for gravity, seismic, magnetic, and electrical methods of geophysical exploration. Sp.
- 445: X-Ray Crystallography.** 3-1-2. Preq., Geology 209 and 210. Fundamentals of X-Ray crystallography. Analysis of minerals by powder diffraction method.
- 450: Seminar.** 0-1-1. Preq., senior standing in geology. Written or oral reports in various phases of geology.
- 485: Coastal Marine Geology.** 8-3-4. Preq., Geology 111, 121 or 112, 122, Chemistry 101, 102, 103, 104. Geomorphological features of estuarine, coastal and continental shelf environments, erosion, depositional and geochemical processes, field and laboratory methods. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory. Su.
- 504: Sedimentary Petrology I.** 6-1-3. Preq., Geology 211, 302, 305. Study of origin, environments of deposition, mineralogy, texture, and classification of siliclastic sedimentary rocks utilizing thin sections and petrographic microscope. F, odd years.
- 505: Advanced Structural Geology.** 3-2-3. Preq., Geology 315. Structural problems and study of the evolution of various structural provinces of the Americas. W, even.
- 506: Sedimentary Petrology II.** 6-1-3. Preq., Geology 211, 302, 305, 421. Study of origin, environments of deposition, mineralogy, texture, and classification of carbonate and non-siliclastic sedimentary rocks utilizing thin sections and petrographic microscope. F, even years.
- 507: Stratigraphy and Structure of the Gulf Coast.** 0-3-3. Stratigraphy and structure of the Gulf Coastal Plain of North America. Geologic history of the region will consider environments of deposition, lithology, fauna, and tectonics. Sp, even.
- 508: Advanced Paleontology.** 3-2-3. Preq., Geology 421, Systematic, stratigraphic, and environmental studies of selected assemblages of invertebrate fossils.
- 509: Economic Geology of the Gulf Coast Region.** 0-3-3. Genesis, exploration, development, and utilization of the metallic and nonmetallic mineral resources of the Gulf Coast Region.
- 510: Advanced Micropaleontology.** 3-2-3. Preq., Geology 421. Advanced study of the paleoecology of microorganisms with emphasis on benthic foraminifera of the Gulf Coast Region. F, odd years.
- 511: Biostratigraphy.** 0-3-3. A study of evolutionary and paleoecologic models used in biostratigraphy. F, even years.
- 512: Advanced Stratigraphy.** 0-3-3. Readings on stratigraphy from the literature with emphasis on environments of deposition. W, odd years.
- 513: Advanced Petroleum Geology.** 0-3-3. Readings from the literature on composition, origin, migration and entrapment of petroleum; study of selected oil and gas fields. W, odd years.
- 514: Regional Geology.** 0-3-3. Tectonics, structure and stratigraphy of major world-wide geologic provinces. W, even years.
- 521: Special Problems.** 1-4 hours credit. Advanced study in Geology designed to broaden basic knowledge in the student's field of specialization. Student may elect to repeat this course for a maximum of 8 hours credit.

GERMAN

- 101-102: Elementary German.** 0-3-3 each. Conversation, reading, and grammar. 101-F,Sp; 102-Su,W.
- 201-202: Intermediate German.** 0-3-3 each. Preq., German 102. Conversation reading, grammar, culture. The students will read a good deal of technical prose in their major fields. 201-W,Su; 202-F,Sp.
- 301-302: Survey of German Literature.** 0-3-3 each. Preq., German 202 or equivalent. A survey of German literature from the beginning until 1800. Su,F.
- 303: Classical German Literature.** 0-3-3. Preq., German 202, or equivalent. A study of German classicism with special reference to Lessing, Goethe, Schiller. Sp.
- 305: Advanced German Grammar.** 0-3-3. Preq., German 202 or equivalent. An intensive course in German grammar designed especially for students who need an advanced proficiency in technical German. W.

307-308: German Conversation and Composition. 0-3-3 each. Preq., German 202 or consent of instructor. Conversation on everyday topics. F,Sp.

309: German Civilization. 0-3-3. Preq., German 202 or instructor's consent. Lectures and readings in history, geography, language, arts and general culture of Germanic lands. Sp.

HEALTH & PHYSICAL EDUCATION

100: Exercises for Physical Development. 3 3/4-0-1. May be repeated for degree credit on Pass-Fail basis. Su,F,W,Sp.

101: Flag Football and Basketball. 3 3/4-0-1. Designed for nonmajors with emphasis on fundamental techniques, rules and team play. W

102: Volleyball and Softball. 3 3/4-0-1. Designed for non-majors with emphasis on fundamental techniques, rules and team play. Sp.

103: Team Sports. 3 3/4-0-1. The course includes fundamental skills, rules, and play of soccer, speedball and Speed-A-Way. F

104: Team Sports. 3 3/4-0-1. The course includes fundamental skills, rules, and play of volleyball, basketball and softball. Sp

105: Fundamental Weight Training. 3 3/4-0-1 (2). Fundamental weight training and strength development techniques. F,W,Sp

106: Adaptive Physical Education. 3 3/4-0-1. This course is for those who are not able to take regular Physical Education Activity classes. Physician's statement required.

108: Tumbling. 3 3/4-0-1. Beginning tumbling for the non-major. W

110: Restricted Activities. 3 3/4-0-1 (4). For students not physically able to participate in regular activity courses. Statement from physician listing restrictions is required. W

111: Wrestling. 3 3/4-0-1 (2). Fundamentals of wrestling. W, odd

113: Outdoor Recreation. 3 3/4-0-1. Emphasis is on the modern principles of hunting and fishing. F,Sp

115: Physical Education Activity Credit. 3 3/4-0-1. Credit given for varsity participation in a sport. F,W,Sp.

116: Physical Education Activity Credit. 3 3/4-0-1. Credit given for varsity participation in a sport. F,W,Sp.

118: Karate. 3 3/4-0-1. Instruction and practice in the basic arm and leg techniques, stances, warm up exercise, one step sparring, formal exercise and historical background of U. S. Karate. F,W,SP.

119: Basketball and Volleyball. 3 3/4-0-1. Designed for non-majors with emphasis on fundamental techniques, rules and team play. W

121: Recreational Sports. 3 3/4-0-1. Instruction in table tennis, shuffleboard, bounceball, aerial tennis, table games and other recreational games. W

130: Physical Education Activities for Children in the Elementary School. 3 3/4-0-1. Preq., consent of the Area Coordinator. Opportunities are provided for students to participate in and teach a variety of physical education activities designed for children in the elementary school physical education program. Su,F,W,Sp.

135: Beginning Racquetball. 3 3/4-0-1 (2). To provide the novice instructions in basic techniques, skills, and rules so a minimum level of proficiency can be attained. F,W,Sp.

150: First Aid. 0-2-2. Lectures, discussions, and practical demonstrations of Red Cross methods in First Aid. F,W,Sp.

200: History of Physical Education. 0-3-3. Preq., sophomore standing. A study of the history of physical education. Emphasis on events and personalities that have influenced the development of physical education. F,Sp

201: Soccer. 3 3/4-0-1. Designed for non-majors with emphasis on fundamental techniques, rules and team play. Sp

205: Gymnastic Apparatus. 3 3/4-0-1. Basic instruction in the use of gymnastic apparatus. Sp.

207: Principles and Practices of Coaching Minor Sports. 1 0-2-2. Study of minor sports from viewpoint of teacher and coach. F

210: Advanced Weight Training. 3 3/4-0-1 (2). Preq., Health and Physical Education 105. Advanced weight training and strength development techniques. F,W,Sp

215: Physical Education Activity Credit. 3 3/4-0-1. Credit for varsity participation in a sport. F,W,Sp

216: Physical Education Activity Credit. 3 3/4-0-1. Credit for varsity participation in a sport. F,W,Sp

218: Karate. 3 3/4-0-1. Preq., Physical Education 118 or comparable karate experience. Emphasis placed on advanced karate techniques, one step sparring, free style sparring, formal exercise and the history of karate. Sp

225: Outdoor Education and Recreation. 3 3/4-2-3. Designed to acquaint recreation leaders, teachers, and administrators with the values, programs, opportunities, and relationships of outdoor education and recreation. F

226: Recreation Leadership Theory. 0-3-3. A study of practices, methods, and processes of staff development in leisure services. Analysis qualities and roles of leaders. Allows opportunities for direct leadership experiences. W

230: Modern Dance. 3 3/4-0-1. Conditioning exercises and techniques that provide a vocabulary of movement leading into dance composition. F,W,Sp.

231: Modern Dance. 3 3/4-0-1. Preq., Physical Education 230 or comparable dance experience. Intermediate techniques of modern dance movements and choreography. Opportunities for production of dance programs and teaching choreography. W

232: Modern Dance. 3 3/4-0-1. Preq., Physical Education 231 or comparable dance experience. Advanced techniques of modern dance movements, choreography and production of dance programs. W

233: Fundamentals and Foundations of Movement. 3 3/4-0-1 (3). Includes body mechanics, conditioning exercises, and figure control. May be repeated for credit. F, W, Sp.

234: Development Conditioning. 3 3/4-0-1. Preq., Physical Education 233 or consent of Area Coordinator. Circuit training, interval training, calisthenics, isometrics are utilized preparing individuals to advance from one fitness level to another. Methods stress attaining and maintaining fitness. W

235: Intermediate Racquetball. 3 3/4-0-1 (2). Preq., HPE 135 or consent of Area Coordinator. Advanced skills and techniques and game strategies in racquetball.

240: International Folk Dance. 3 3/4-0-1. Dances from various countries of the world are presented along with a study of the country and the people where dances originated. W

241: Golf. 3 3/4-0-1. Basic techniques, skills and rules of play are presented. Students provide own transportation to course used for play. F,Sp

243: Fencing. 3 3/4-0-1. The fundamental techniques, skills and rules of bouting are presented. W

245: Social Dance. 3 3/4-0-1. Instruction and practice in the fundamental social dance steps such as the waltz, foxtrot, rhumba, cha cha cha, in addition to currently popular dances. F,W,Sp

250: Basic Gymnastics in Physical Education. 3 3/4-0-1. Instruction in basic tumbling and apparatus skills with emphasis on teaching techniques. Majors and Minors only. F,W

251: Elementary Physical Education. 1-3-3. Preq., HPE 200 and 300 or taken concurrently. To introduce students to a variety of physical activities and methods used in teaching and how to apply these through practical field experience. F,Sp

261: Square and Folk Dance. 3 3/4-0-1. Square and folk dances that are a part of American dance are included in the course.W

262: Bowling. 3 3/4-0-1. Instruction in the fundamental techniques, rules and etiquette of bowling with provisions for practical application. Lane fee required. F,W,Sp

271: Tennis. 3 3/4-0-1. Techniques, skills and rules are presented for the beginning player. Su,F,Sp

272: Badminton. 3 3/4-0-1. The course is designed to include techniques, skills, and rules of the game for the beginning player. W

- 273: Archery.** 3 3/4-0-1. Basic techniques, skills and rules of archery are presented. F
- 275: Aerobic Dance and Exercise.** 2-1-2 (3). The course will stress accessing, developing, and maintaining physical fitness through aerobic exercise and dance. Su.
- 280: Swimming.** 3 3/4-0-1. Open to students who do not know how to swim or who are unable to swim safely in deep water. Su,F,W,Sp
- 281: Swimming.** 3 3/4-0-1. Preq., Health and Physical Education 280 or comparable swimming skill. Instruction for the student in the basic swimming skills. Endurance and survival swimming. Su,W
- 284: American Red Cross Advanced Lifesaving.** 3 3/4-1-2. Preq. Health and Physical Education 281 or comparable swimming skills. Su,W
- 285: Water Safety Instructor.** 3 3/4-1-2. Preq., Current Advanced Lifesaving Certification and HPE 281 or comparable swimming skills. Techniques and skills required for American Red Cross WSI Certification. Su,Sp
- 286: Physical Education for Habilitation and Remediation.** 0-3-3. To familiarize students with habilitative movement experiences and remediation techniques in working with individuals of limited physical or mental resources. W, odd
- 290: Personal and Community Health.** 0-3-3. Designed to develop attitudes and practices which contribute to better individual and group health. Emphasis is placed upon major health problems or early adulthood. Su,F,W,Sp
- 292: Preventive Health.** 0-3-3. Emphasis on chronic and degenerative diseases, mental health, preventing communicable and non-communicable diseases and the role of physical fitness in preventive health. F,W,Sp.
- 293: Consumer and Environmental Health.** 0-3-3. Directing the consumer in selection of health services and understanding the effect of environmental pollution. F.
- 294: The School Health Program.** 0-3-3. A study of the administration and organization of a school health program. Emphasis on establishing such a program and utilization of available resources in school health. W.
- 300: Safety Education.** 0-3-3. A survey of the accident problem, the social and emotional aspects involved, and the application to home, community, and industrial life. W,Sp.
- 301: Curriculum Innovations, Instructional Devices and Lab Instruction in Drivers Education.** 3 3/4-3-4. In-depth study of curriculum materials and instructional devices and techniques including Simulation, Multimedia Driving Range, On-Street Instruction, and Motorcycle.
- 304: Organization and Administration of Intramural Sports.** 3-2-3. Preq., Sophomore standing. This course covers the organization and administration of high school and college intramural programs. The student is required to assist in intramurals at Tech. W
- 305: Materials and Methods in Health Education in Schools.** 0-3-3. Preq., HPE 290, 292, 293 and junior standing. Includes information relative to school health education program with emphasis on methods of instruction and use of materials in schools. F,W
- 306: Principles and Practices of Football Coaching.** 0-2-2. Preq., junior standing. This course is designed to familiarize the student with various defensive and offensive systems that are used by coaches. F
- 308: Principles and Practices of Baseball or Softball Coaching.** 0-2-2. Preq., junior standing. Fundamental skills of offense and defense, training procedures, scouting, strategy practice, and officiating. W
- 312: Principles and Practices of Basketball Coaching.** 0-2-2. Preq., junior standing. Fundamentals of team offense and defense. Training and practice; scouting and strategy; officiating. W
- 313: Principles and Practices of Volleyball Coaching.** 0-2-2. Preq., junior standing. Fundamentals of team offense and defense. Training and practice; scouting and strategy; officiating. Sp, odd
- 314: Principles and Practices of Track and Field Coaching.** 0-2-2. Preq., junior standing. Fundamental movements involved in the different events: (1) staffing for the different events; (2) training and practice; (3) officiating. Sp
- 317: Camp Leadership.** 0-3-3. Preq., sophomore standing. A study of duties and responsibilities of camp counselors, leadership techniques in program activities and camp organization. Sp
- 318: Sport Karate.** 3 3/4-0-1. Preq., HPE 218 or comparable karate experience. Tournament techniques, advanced formal exercise, offensive and defensive free style sparring techniques, biomechanical and physiological principles of training, rules and etiquette. W, odd
- 320: Organization and Administration of Health and Physical Education.** 0-3-3. Preq., junior standing, upper division. Development and practical application of physical education programs. F, W.
- 326: Applied Anatomy and Kinesiology.** 0-3-3. Preq., Zoology 225 & 226, junior standing, or consent of Area Coordinator. Analysis of movement based on a knowledge of anatomy and physiology as applied to the function of body mechanics. F,Sp
- 340: Materials and Methods in Physical Education and Health Education for Elementary Schools.** 5-3-3. Preq., HPE 130. Designed to prepare the teacher for the direction of children in physical education and for developing in children desirable knowledge, skills and attitudes in health. F,Sp
- 355: Community Centers and Playgrounds.** 0-3-3. The specific problems and programs unique to recreation centers and playgrounds, emphasizing techniques for administration and operation. W
- 362: Bowling.** 3 3/4-0-1. Preq., HPE 262 or skill in basic bowling techniques. Instruction for individuals who know the fundamentals of bowling. Lane fee required. W,Sp
- 370: Techniques and Methods of Teaching Rhythms.** 3 3/4-0-1. Techniques, methods and materials related to teaching rhythms in the elementary and high school.
- 371: Tennis.** 3 3/4-0-1. Preq., HPE 271 or skill in basic tennis techniques. Advanced skills and game strategy are stressed. F,Sp.
- 372: Badminton.** 3 3/4-0-1. Preq., HPE 272 or skill in basic badminton techniques. Advanced skills and game strategy are stressed. W.
- 404: Introduction to Community Recreation.** 0-3-3. A study of community recreation — its history, function in the community, organization and administration, programs, personnel and leadership, and recreation areas and facilities. F
- 405: Sports Medicine and First Aid.** 0-2-2. Prevention, treatment, and rehabilitation of athletic injuries and first aid procedures.
- 406: Leisure for the Retired.** 0-3-3. Course designed for recreation majors to provide an understanding of the biological, physiological, psychological, and sociological aspects of aging necessary in working with mature adults. Sp.
- 407: Physical Fitness, Development and Maintenance.** 3-2-2. The course will inform students of programs to develop maintain various aspects of physical fitness and the application of basic elements of physical fitness. W,Sp.
- 408: Physiology of Exercise.** 2-2-3. Basic human physiology with emphasis on the physiological changes and residues of exercise. F
- 410: The Designing, Building, and Maintenance of Sport and Recreational Facilities.** 0-3-3. The designing, building, and maintenance of recreational and sports facilities. F
- 411: Current Theories and Practices in the Teaching of Rhythms.** 0-3-3. Basic theories, techniques, materials, and practices in the teaching of the various forms of movement to music are included in the course. F, odd, W

- 412: History of Sports.** 0-3-3. A study of sports from ancient to modern times. W, odd
- 414: Introducing Adapted Physical Education.** 0-3-3. Preq., HPE 326. To familiarize students with the role of adapted physical education and the physical, emotional, social and learning characteristics of exceptional children. Su, F, Sp
- 415: Recreation Internship.** 15-3-6. Senior standing and consent of Area Coordinator. Practical experiences in various agencies, institutions, and community settings offering recreation and leisure services. Observation, participation, leadership opportunities. Su,F,W,Sp.
- 417: Motor Development, Health Processes, and Safety Procedures in Education of the Handicapped.** 0-3-3. Emphasis on motor development and knowledge of basic health processes and safety procedures needed to work effectively with children and adults having serious handicapping conditions. F.
- 433: Special Problems in Health and Physical Education.** 0-3-3 (9). Designed to deal with selected problems in Health and Physical Education. Su,F,W,Sp.
- 457: Materials and Methods in Teaching Physical Education.** 3-3-4. Preq., HPE 320, 251, senior standing, upper division. Methods, materials and analytical skills used in teaching health and physical education. Practical application of methods, materials, and analytical skills. F,W
- 504: Planning and Evaluating Parks and Recreation Services.** 0-3-3. Recreation planning as related to selections, acquisitions, planning, design and development of recreation areas and facilities. Sp, odd.
- 505: Park Maintenance and Management Problems.** 0-3-3. An indepth study of problems related to the maintenance and management of recreation/park areas and facilities, with student research into problems with special interest. W, odd
- 509: Tests and Measurement in Physical Education.** 0-3-3. Course designed to enable the student to learn the advanced processes in testing and measuring boys and girls at the elementary and high school level. The most important elements to be measured: strength, skills, coordination, and cardiovascular conditions. Sp.
- 516: Education for Physical Fitness.** 0-3-3. Factors involved in developing, maintaining and evaluating physical fitness. Emphasis is placed on individual exercise programs, cardiovascular risk factors, and the beneficial effects of exercise. Su, W
- 518: Recent Literature and Research in Physical Education and Recreation.** 0-3-3. Review and evaluation of reports of recent research in physical education, recreation, and related fields; review of reports of professional committees, conferences and year books. W, odd.
- 519: Alcohol and Narcotics Education.** 0-3-3. Research and evaluation of the effects of alcohol and narcotics. Su.
- 520: Motor Development and Learning.** 0-3-3. Nature of motor learning and development, factors affecting success in skill learning and improving physical performance. F, odd
- 521: Behavior Impairment and Physical Education.** 0-2-2. Preq., HPE 414. Physical education for the severely handicapped. Course focus in on handicapped individuals with implications for teaching motor activities. Su.
- 522: Observing and Teaching in Adapted Physical Education with the Behavior Impaired.** 3-0-1. Preq., and concurrent with HPE 521. Practicum in physical education for the severely handicapped. Su.
- 523: Chronic Disability and Physical Education.** 0-2-2. The course focus is on individuals with chronic and permanent physical disabilities which affect motor performance with implications for selection of activities in physical education. Su.
- 524: Observing and Teaching in Adapted Physical Education with the Chronically Disabled.** 3-0-1. Preq., and concurrent with HPE 523 Practicum in physical education for the chronically and permanently disabled. Su.
- 526: Physiology of Exercise.** 0-3-3. Physiology, anatomy, and kinesiology used to assist the student in gaining an understanding of conditions and factors affecting the body functions during physical activity. W.
- 527: Foundations of Physical Education.** 0-3-3. History and philosophy of physical education and of current trends and developments. Su.
- 529: Curriculum Construction in Physical Education.** 0-3-3. Basic principles of curriculum construction in the junior high and high school with special emphasis on current trends. W, odd
- 530: Administration of Recreation.** 0-3-3. A course designed to familiarize the student with the administrative problems in school and community recreation.
- 531: Physical Education Curriculum for the Handicapped.** 0-3-3 Needs of the physically and mentally handicapped as related to the physical education program. Study of specific activities, methods and evaluation. Su
- 532: Interscholastic Athletics.** 0-3-3. This course is designed to meet the needs of those persons preparing to coach and/or those already coaching high school athletic teams. It deals with state and national athletic association make-up, plus problems of scheduling, transportation, insurance, etc. F, odd
- 533: Problems in Health, Physical Education, Recreation and Athletics.** 1-3 hour (s) credit (6). Consent of Area Coordinator. Credit depends on the nature of the problem and work to be accomplished. Su,F,W,Sp.
- 534: Mechanical Analysis of Motor Skills.** 0-3-3. Analysis of the various motor skills to determine their relationship to basic mechanical principles, anatomical and kinesiological factors, laws of physics, etc. Su,F
- 539: Sports Psychology.** 0-3-3. Course designed to explore the behavior of individuals participating in play, game and sports. F
- 540: Sport Impact on Society.** 0-3-3. The basic premise of this course is to make the individual aware of the impact of sports upon the American culture with focus on competition, economics, mythology, race relations and the Olympic syndrome. Sp.
- 543: Physical Education and Sport in the Elementary School.** 0-3-3. Activity-oriented study of creative play, games, rhythms, and fitness as related to the child in the elementary school. F (odd).
- 544: Drug Abuse Prevention.** 0-3-3. Major drugs of abuse and the available alternatives to individuals involved in this behavior particularly during pre-adolescence and adolescence. F (even).
- 549: Advanced Theory of Sports, Games, and Athletics.** 1-3 hours credit. (3). Consent of instructor. Advanced theory of various sports, games, and athletics will be explored and analyzed. Su.
- 550: Current Trends in Health, Physical Education, and Recreation.** 0-3-3. A survey of current literature in health, physical education, and recreation with emphasis upon recent research studies. Sp, odd

HISTORY

- 101: World History to 1500.** 0-3-3. A survey of civilization of the world to 1500. Major emphasis on Western Civilization. Su,F,W,Sp.
- 102: World History since 1500.** 0-3-3. A survey of civilization of the world since 1500. Major emphasis on Western Civilizations. Su,F,w,Sp.
- 201: History of the United States, 1492-1877.** 0-3-3. A survey of American history from discovery through Reconstruction. Su,F,W,Sp.
- 202: History of the United States, 1877 to the Present.** 0-3-3. A survey of American history from Reconstruction to the present. Su,F,W,Sp.
- 313: United States Military History.** 0-3-3. A survey of the origins and role of American military forces in our society from the colonial period to the present.
- 328: History of the Ancient Near East.** 0-3-3. A survey of the civilization of Egypt and Mesopotamia from earliest times to the Arab conquest in the 7th century. F, even.

- 329: History of the Ancient Near East.** 0-3-3. A survey of the civilizations of the Hittites, Hebrews, Canaanites, Philistines, Phoenicians, Carthaginians, Lydians, and Persians to the middle of the 7th century. W, even.
- 330: The Intellectual and Cultural History of the Western World from the Hellenic Era to the End of the Middle Ages.** 0-3-3. A survey of the philosophical, cultural, religious, scientific, artistic, and literary thought and achievement of western man from the Greeks to the beginning of the Renaissance. F, odd.
- 331: The Intellectual and Cultural History of the Western World in Modern Times.** 0-3-3. A survey of the philosophical, cultural, religious, scientific, artistic, and literary thought and achievement of western man from the Renaissance to the present. W, odd.
- 332: History of Greece.** 0-3-3. A political, economic, social, and cultural study of Greek history from earliest beginnings through the Hellenistic era. F, odd.
- 333: History of Rome.** 0-3-3. A survey of the political, economic, social, and cultural history of Rome from earliest beginnings through the fifth century A.D. W, odd.
- 334: Medieval Europe.** 0-3-3. A survey of Europe from the decline of Rome to the advent of the Renaissance. F, even.
- 335: Renaissance and Reformation.** 0-3-3. A study of the political, economic, and cultural evolution of Europe from 1300 to 1648. W, even.
- 336: History of the Modern Near East.** 0-3-3. A history of the Arabic world from the fifteenth century to the present. Sp.
- 340: History of Latin America to 1824.** 0-3-3. A survey of Latin American history from European and Indian backgrounds to 1824. F, even.
- 341: History of Latin America since 1924.** 0-3-3. A survey of political, economic and social developments in Latin America since 1824. W, even.
- 342: History of Mexico.** 0-3-3. A survey of the political, economic, and social evolution of the Mexican nation from its Indian origins to the present. F, odd.
- 344: History of Central America and the Caribbean.** 0-3-3. The history of Central America and the islands of the Caribbean from 1492 to the present, with emphasis on the historical roots of contemporary problems.
- 350: The American Frontier.** 0-3-3. A study of the American frontier from the colonial period to 1890, with special emphasis on social and economic growth. Sp.
- 360: History of Traditional China.** 0-3-3. A study of the development of political, social, and cultural institutions of China from antiquity to the establishment of the Manchu dynasty. F, even.
- 361: History of Modern China.** 0-3-3. A history of China from 1644 to the present with emphasis on China's response to Western influence. W, even.
- 370: History of Traditional Japan.** 0-3-3. A study of the historical development of Japan from the earliest times to 1603. F, odd.
- 371: History of Modern Japan.** 0-3-3. A study of the political, social and intellectual history of Japan from 1603 to the present. W, odd.
- 380: History of England to 1688.** 0-3-3. A study of the development of the English people from the earliest times to the accession of William and Mary. F.
- 381: History of England since 1688.** 0-3-3. A study of English political, social, and economic institutions and policies in the eighteenth, nineteenth, and twentieth centuries. Sp.
- 385: Hitler's Germany.** 0-3-3. A study of German history since 1862 with special emphasis on the rise and impact of Adolph Hitler and National Socialism. Sp., odd.
- 402: History of American Foreign Policy.** 0-3-3. A study of the development and expansion of American foreign policy from colonial beginnings to the present. F, even.
- 410: History of Modern Russia.** 0-3-3. A survey of Russian history with special emphasis on twentieth century developments. F.
- 415: History of the Christian Church.** 0-3-3. A study of the rise and expansion of the Christian Church and its enormous influence on world history. F,W, even.
- 418: Europe in the Era of the French Revolution and Napoleon.** 0-3-3. A study of early modern Europe during the transition from the aristocratic era of the Old Regime to the Age of Revolutions.
- 419: Nineteenth Century Europe.** 0-3-3. A survey of political, economic, and cultural developments in Europe from the defeat of Napoleon I to the outbreak of World War I.
- 420: Twentieth Century Europe.** 0-3-3. A survey of political, economic, and cultural developments in Europe since the outbreak of World War I.
- 423: The Civil War and Reconstruction.** 0-3-3. A study of American history from the beginning of the Civil War to 1877.
- 446: History of the Far East.** 0-3-3. A comparative study of the traditional cultures of the Far East and their responses to the western impact after 1800.
- 450: History of the Old South.** 0-3-3. A study of the political, economic, and social development of the ante-bellum South. Su, odd; Sp, even.
- 460: History of Louisiana.** 0-3-3. A study of Louisiana history from early explorations to the present. Su,F,W,Sp.
- 465: Early 20th Century America.** 0-3-3. A study of the social, political and economic development of the United States from 1900 to the end of the New Deal.
- 466: Contemporary America.** 0-3-3. An examination of United States history from World War II to 1960, emphasizing the expansion of America's role in world affairs.
- 467: Vietnam, Watergate and After: America, 1960 to the Present.** 0-3-3. An intensive study of United States history from the troubled 60's to the present. Sp, odd.
- 472: History of American Ideas.** 0-3-3. A survey of the major forces and ideas that have shaped American history. W, even.
- 475: Women in American History.** 0-3-3. A study of women's contributions to American history with special emphasis on the role of women in contemporary society. Sp,W.
- 480: History of Science.** 0-3-3. Freq., advanced history courses and six hours of science. A descriptive survey of the history of science and its civilizational implications. Sp.
- 481: The British Empire.** 0-3-3. A study of the rise and fall of the British Empire, with primary emphasis on South Africa, India, Canada, Australia, and New Zealand.
- 500: American Historiography.** 0-3-3. A study of the leading American historians and their contributions to the field of history.
- 505: Introduction to Historical Research and Writing.** 0-3-3. Lectures, readings, discussions, and practical exercises on the sources and methods of professional historical scholarship, with students producing papers based on original research. F.
- 510: Independent Study and Research.** 9-0-3. Independent reading and research in selected history topics.
- 515: Seminar in Louisiana History.** 0-3-3. Selected reading and research in Louisiana History, with particular emphasis on the twentieth century.
- 520: Colonial America.** 0-3-3. A study of colonial life from European colonization through the American Revolution.
- 521: The Federal Period, 1783-1825.** 0-3-3. A study of the formative years of the United States from the Confederation period to the rise of Jacksonian Democracy.
- 522: The Middle Period, 1825-1860.** 0-3-3. A study of the growth and development of the United States from Jacksonian Democracy to the Civil War.
- 524: The Emergence of Modern America, 1876-1900.** 0-3-3. A study of the new American nation from the end of Reconstruction to its emergence as a world power.
- 525: Seminar in Recent American History.** 0-3-3. Selected reading and research in contemporary America, with particular emphasis on events since World War II.
- 530: Seminar in Ancient History.** 0-3-3. Selected reading and research topics in Ancient History.

- 535: Seminar in Medieval History.** 0-3-3. Selected reading and research topics in Medieval History.
- 540: Recent European History.** 0-3-3. An intensive study of a restricted subject in recent history (to be chosen by the instructor), with an introduction to scholarly research in this field.
- 543: Seminar in Latin American History.** 0-3-3. Lectures, reading and research on selected topics in Latin American history. Sp, odd.
- 545: Seminar in Near East History.** 0-3-3. Independent study, research, and writing in Near East History, with an introduction to scholarly research in this field.
- 548: Seminar in East Asian History.** 0-3-3. Selected reading and research topics in East Asian History.
- 550: Seminar in British History.** 0-3-3. Selected reading research topics in British History.

HOME ECONOMICS

Courses in the College of Home Economics are also listed under: Family & Child Studies, Family Management & Consumer Studies, Fashion & Textiles, and Food & Nutrition.

- 127: Professional Home Economics.** 0-1-1 (Pass/Fail) Introduction to roles and responsibilities of the professional home economist in dietetics, fashion merchandising, education, and consumer services. F.
- 327: Demonstration.** 6-0-2. Preq., Speech 110. Improvement of communication by practical application of demonstration techniques. For teachers or home economists in business. F.
- 405: Home Economics Methods.** 0-3-3. An understanding of the home economics education programs with emphasis on philosophy, principles and methods of teaching in home economics areas. W.
- 406: Special Problems in Home Economics.** 1-3 hours credit. (12). Special offerings selected by student with approval of advisor. May be repeated for credit with Dean's permission.
- 457: Orientation to Employment.** 0-1-1. Preparation to assume professional roles in the field of home economics. Designed to be taken one or two quarters prior to graduation. F,W,Sp.
- 467: Practica in Home Economics.** 1-3 hours credit (6). Preq., consent of director of practica. Structured experiences in specialized areas of home economics. May be repeated for credit with Dean's permission. (Pass/Fail.)
- 504: Methodology in Home Economics Research.** 0-3-3. Techniques and principles of design for experimental and educational research.
- 505: Vocational Home Economics Supervision.** 0-3-3. The value of supervision with emphasis on responsibilities and techniques desirable for effective working relationships with student teachers.
- 506: Special Problems in Home Economics.** 1-3 hours credit (12) Directed study of advisor approved topics. May be repeated for credit with Dean's permission. F,W,Sp,Su.
- 515: Home Economics Teaching Practicum.** 10-1-3. Principles and techniques in teaching a specific area of home economics at the post secondary level. Students work with faculty and undergraduate courses in area of specialty. Applications required.
- 551: Research and Thesis.** 3 hours credit or multiples thereof. Maximum credit is 6 hours.

HORTICULTURE

- 100: Horticulture Laboratory.** 3-0-1-(3). A series of exercises, planned on a seasonal basis, to provide experience in horticultural practices. F,W,Sp.
- 101: General Horticulture.** 3-2-3. Modern horticultural production and basic practices for vegetables, fruits and nuts; woody ornamentals, house plants and florist crops. W.
- 103: Floral Design.** 3-2-3. Design, mechanics and construction of floral pieces emphasizing retail floristry practices. F.

- 210: Flower Growing.** 0-2-2. Principles and practices involved in growing garden and green house flower crops. W.
- 282: Ornamental Plants.** 0-3-3. Classification and identification of woody and herbaceous ornamental plants. Sp.
- 300: Advanced Horticulture Laboratory.** 9-0-1-(4). Field trips to experiment stations, large wholesale florists and nurseries, and large horticultural areas. Sp.
- 306: Landscape Design.** 0-3-3. Elements and principles of design as applied to the home and other small properties. F.
- 307: Landscape Design.** 3-2-3. Elements and principles of design as applied to small parks, institutional grounds, and other large areas. W.
- 308: Interior Plantscaping.** 3-2-3. Cultural and environmental requirements of interior plants and their use in design. Sp.
- 315: Plant Propagation.** 0-2-2. Principles and practices of sexual and asexual methods of propagating horticultural plants. F, odd.
- 400: Special Problems.** 3-0-1 (6). Assignments in floral or landscape design, greenhouse of field production projects or other horticultural practicums. F,W,Sp,Su.
- 401: Vegetable Growing.** 3-2-3. Methods and practices of home and commercial vegetable production, with emphasis on those adapted to the South. Sp., even.
- 405: Fruit Growing.** 3-2-3. Home and commercial production of tree fruits, small fruits and nuts adapted to the South. Sp.,odd.
- 440: Horticultural Production and Sales.** 0-3-3. Production, handling and sales practices in the nursery, greenhouse, and garden center; retail and wholesale floristry techniques. F, odd.
- 441: Landscape Contracting.** 0-2-2. Landscape contracting operations; estimating and bidding, plant installation, care and maintenance, design considerations, use of structural elements and irrigation systems. F, even.
- 445: Computer Applications in Landscape Design.** 0-1-1 (3). Preq., Agricultural Engineering 309 or consent of instructor. Introduction to the use of computers as tools in Landscape Design, emphasizing practical experience in basic programming and graphics techniques. Su.

INDEPENDENT STUDY

- 498-499: Readings and Research-Major Field.** 9-0-3 each. Preq., admission to Independent Study program. Departmental honors course for independent research and reading. Offered by each department in the College of Arts and Sciences. Su,F,W,Sp.

INDUSTRIAL ENGINEERING.

- 100: Introduction to Industrial Engineering.** 3-0-1. Survey of topics to introduce the student to the profession, the department and the curriculum.
- 201: Industrial and Systems Engineering.** 0-3-3. Preq., sophomore standing. An overview of the application of engineering analysis and design principles to industrial and human activity systems. F.
- 301: Industrial Cost Analysis.** 0-3-3. Analysis and control of manufacturing costs.
- 400: Engineering Statistics.** 0-3-3. Preq., Mathematics 231. Application of probability and distribution theory to various branches of engineering.
- 401: Engineering Statistics.** 0-3-3. Preq., Industrial Engineering 400. Inferences concerning proportions, regression analysis, analysis of variances, quality control, reliability, and life testing.
- 402: Introduction to Operations Research.** 0-3-3. Coreq., Industrial Engineering 400. Inventory theory, replacement theory, waiting lines, game theory, allocation and sequencing.
- 404: Operations Research.** 0-3-3. Preq., Industrial Engineering 402. Industrial engineering applications of dynamic programming, critical path methods, projects evaluation review technique (PERT), and computer simulation of large systems.

- 406: Computer Applications in Production Systems.** 0-3-3. Preq., Industrial Engineering 402. The planning, analysis and control of production systems. Emphasis is upon high volume discrete production and flexible manufacturing systems.
- 408: Facilities Planning.** 0-3-3. Preq., Mechanical Engineering 251 and Industrial Engineering 201. Detail planning for plant location, buildings, services, materials handling and transportation.
- 409: Production Engineering.** 3-2-3. Preq., Mechanical Engineering 251. Methods engineering, work measurement, and production standards.
- 411: Operations and Facilities Design.** 0-2-2. Preq., Industrial Engineering 400, 408 and 409. Introduction to industrial engineering systems design. Selection and analysis of an engineering problem from industry or any other field where industrial engineering techniques are applied.
- 412: Operations and Facilities Design.** 0-2-2. Preq., Industrial Engineering 411. The development of a solution to the engineering problem started in Industrial Engineering 411.
- 413: Industrial Robotics and Automated Manufacturing.** 0-3-3. Preq., Mechanical Engineering 221. Background, structure, drive systems, effectors and the applications of robots in industrial systems.
- 424: Seminar.** 0-1-1. Preq., senior standing. Instruction and practice in conference-type discussions of technical and professional matters of interest to industrial engineers.
- 425: Industrial Safety.** 0-3-3. Preq., junior standing. Principles of domestic and industrial safety.
- 427: Construction Safety.** 0-3-3. Preq., junior standing or consent of instructor. Fundamentals of construction safety.
- 430: Fire Protection.** 0-3-3. Consent of instructor. The study of fire, potential fire hazards, and fire detection and extinguishing systems.
- 450: Special Problems.** 1-3 hours credit. Preq., Senior standing and consent of instructor. Selected topics of current interest in Industrial Engineering not covered in other courses.
- 502: Operations Research.** 0-3-3. Preq., Graduate standing. Applications of linear programming to industrial systems, such as production and inventory control. Sensitivity analysis. Transportation and transshipment algorithms. Parametric linear programming. Convex and integer programming.
- 504: Systems Simulation.** 0-3-3. Preq., Industrial Engineering 400, or equivalent. The use of digital computer programs to simulate the operating characteristics of complex systems. Statistical considerations in sampling from a simulated process.
- 505: Queuing Theory.** 0-3-3. Preq., Industrial Engineering 400 or consent of instructor. Optimizing operating conditions for systems involving waiting lines. Single and multichannel models. Application to maintenance and customer service, shop scheduling and inventory control.
- 506: Dynamic Programming.** 0-3-3. Preq., Graduate standing. The principles of optimality. One- and two-dimensional processes. Markovian decision processes. Lagrange multiplier technique.
- 507: Engineering Administration.** 0-3-3. Preq., graduate standing or consent of instructor. Organization of the engineering function. Measurement and evaluation of engineering activities. Project management and control. Development of engineering managers.
- 508: Human Factors in Engineering Systems.** 0-3-3. Preq., graduate standing or consent of instructor. Testing and instrumentation of human response to environmental conditions. Designing equipment, work place and work environment for economy and effectiveness of human work systems.
- 509: Advanced Engineering Economy.** 0-3-3. Preq., Industrial Engineering 502 or equivalent. Effect of income tax on decision making. Retirement and replacement analysis. Capital management. Elements of economic measurement, analysis and forecasting in the face of uncertainty.

- 510: Advanced Work Measurement.** 0-3-3. Preq., Industrial Engineering 409, or consent of instructor. Advanced methods improvement and work measurement techniques. Design of complex work systems. Work sampling, construction of standard data and mathematical models of work systems.
- 512: Reliability Engineering.** 0-3-3. Preq., Industrial Engineering 400. Application of statistical theory in engineering design. Testing methods for determining reliability. Design of components and assemblies for reliability.
- 513: Inventory Control.** 0-3-3. Preq., Industrial Engineering 400 or equivalent. Analytical methods of determining reorder size and minimum points of various inventory system. Mathematical models with restrictions and quantity discount. Forecasting techniques and production smoothing.
- 514: Industrial Statistics.** 0-3-3. Preq., Industrial Engineering 400 or equivalent. Application of statistical techniques to industrial problems, relationships between experimental measurements using regression, correlation theories and analysis of variance models.
- 520: Graph and Network Analysis.** 0-3-3. Preq., Industrial Engineering 400. Basic Concepts of graph theory and networks, their applications to production scheduling, transportation models, and other systems.
- 521: Methods of Optimization.** 0-3-3. Preq., Graduate standing and FORTRAN IV. District elimination methods of sequential search, even-block search, Fibonacci search and golden section and odd-block search. Pattern search, gradient method and geometric programming.
- 524-525-526: Graduate Seminar.** 0-1-1 each. Critical group examination of the subject matter currently developed in the literature related to industrial engineering and operations research.
- 529: Industrial Hygiene Engineering.** Preq., graduate standing or consent of instructor. Recognition, evaluation and control of environmental factors in the work place.
- 550: Special Problems.** 1-4 semester hours credit. Advanced problems in industrial engineering.

INSTRUMENTATION TECHNOLOGY

- 201: Instrument Maintenance and Calibration.** 3-2-3. Preq., Electro-Technology 270. Instruction and practical laboratory experience in the mechanical and electrical maintenance and calibration of industrial instruments. Introduction to the standards laboratory, and awareness of the importance of traceable calibrations. Sp.

ITALIAN

- 101-102: Elementary Italian.** 0-3-3 each. Italian pronunciation, grammar and the vocabulary of the fine arts, history, economics, and current affairs. 101-Su,Sp, Rome; 102-Su, Rome.
- 201-202: Intermediate Italian.** 0-3-3 each. Preq., Italian 102 or equivalent. Conversation and vocabulary building with emphasis on contemporary Italian literature and individual study of Italian works in student's major field. 201-W;202-Sp.

JOURNALISM

- 101: News Writing.** 0-3-3. May be taken with English 101. Beginning course in news writing. Work on "leads" and other newspaper writing basics. Typing ability required. F.
- 102: News Writing.** 0-3-3. Preq., Journalism 101. To involve principles of interviewing, advanced reporting and specialty writing such as police reporting, consumer reporting and coverage of public affairs. W.
- 310: Copy Editing.** 0-3-3. Preq., Journalism 101. Course dealing with methods of editing copy and the writing of headlines. W.
- 311: Advanced Copy Editing.** 0-3-3. Preq., Journalism 310. Techniques of newspaper makeup and layout; includes writing

headlines, editing wire copy, cropping and sizing photography, principles of makeup and dummied pages. Sp.

- 320: Feature Writing.** 0-3-3. Preq., Journalism 101. Practical instruction in gathering material for "human interest" and feature articles of various types for magazines as well as newspapers. Sp.
- 330: Editorial Writing.** 0-3-3. Preq., Journalism 101. Course in the study of fundamentals and practice in editorial writing. Course includes units on recent history and current events. W.
- 350: Practical Reporting.** 6-0-2. Open only to journalism majors or minors. Preq., Journalism 101, and 310. Writing of articles for the university newspaper upon assignment or consultation with faculty supervisor. May be repeated for two additional semester hours credit. Su,F,W,Sp.
- 353: General Newspaper Work.** 6-0-2. Open only to journalism majors or minors. Preq., Journalism 101, 310. Practical lab work on university newspaper. May be repeated for two additional semester hours credit. F,W,Sp.
- 355: Practical Reporting.** 6-0-2. Open to majors and minors only. Preq., Journalism 101 and 310. Practical lab work on the Tech Talk. May be repeated for two additional semester hours credit. F,W,Sp.
- 360: Advertising.** 0-3-3. Fundamental study of advertising principles, including information on major media. F.
- 364: News for Radio and Television.** 0-3-3. Preq., Journalism 101 or equivalent experience. The gathering and preparation of news and editorial material for broadcast by radio and television.
- 374: Industrial Publications.** 0-2-2. Study of the purposes, style, content and means of producing house organs and business periodicals of several types. W.
- 375: People and Events.** 0-3-3. Creative writing, as it applies to magazines and newspapers. A "how-to-get-published" primer, with oral and written critiques of work. F.
- 400: Media and the Law.** 0-3-3. Preq., 12 hours of journalism. Emphasis on legal rights, responsibilities related to the media, and the public's right to know. Media court cases to be considered. Sp, Su.
- 450: Public Relations.** 0-3-3. Comprehensive approach into diverse functions of the practitioner as a specialist, analyst and counselor relevant to public relations' role involving monitoring public opinion. Sp.
- 451: Advanced Practical Reporting.** 6-0-3- (9). Junior and Senior majors only and by permission of instructor. Consists of practical news work in professional media, work ranging from basic news beat coverage to news writing. Su,F,W,Sp.
- 455: Scholastic Journalism.** 0-3-3. Preq., Journalism 101 or permission of instructor. A practical course in basic techniques designed to aid secondary school journalism curriculum development with emphasis on advising publications.

LIBRARY SCIENCE

Library Science courses numbered 300 and 400 are open only to junior and seniors.

- 201: Books and Materials for the Elementary School.** 0-3-3. A study of the reading interests of children. Selection and evaluation, sources and use of materials with children. Extensive reading of children's books. Su,F,W,Sp.
- 210: Libraries and Librarianship.** 0-3-3. Introductory survey of libraries and librarianship designed for students entering the profession. F.
- 301: School Library Administration.** 0-3-3. Administration of the school library with emphasis on planning for effective use of library services and materials in cooperation with instructional staff. Su, even; F.
- 302: Acquisition and Organization of Library Materials.** 0-3-3. Preq., Library Science 301 or consent of instructor. Basic principles of cataloging and classifying print and non-print materials. Study of Dewey Decimal Classification System. Su, odd; W,Sp.
- 303: Introduction to Reference Materials and Service.** 0-3-3. Selection, evaluation and use of basic reference works. Practice

in solution of typical reference problems. Emphasis on school library as learning center. Su,F,Sp.

- 305: Books and Materials for the Young Adult.** 0-3-3. Selection and evaluation, sources and use of print and non-print materials that meet the needs of the young adult. Extensive reading of books for the young adult. Su,F,W,Sp.
- 315: Advanced Reference and Bibliography.** 0-3-3. A study of important reference works in all fields of knowledge with emphasis on bibliography.
- 330: Problems in Librarianship.** 0-3-3. Preq., 12 hours of Library Science. Investigation of problems relating to school library learning centers. Sp.
- 410: Selection of Books and Audio-Visual Materials.** 0-3-3. Methods and criteria for selection of print and non-print materials in all types of libraries. W.
- 440: Library Automation.** 0-3-3. Preq., Library Science 210, 302 or consent of instructor. Planning and implementing automated library procedures using the COBOL programming language and IBM 360 series computer. W.
- 450: Literature for Children.** 0-3-3. Designed to relate understanding of child development to knowing and using print and non-print materials with children. Practical experience in storytelling and creative drama. Su,Sp.
- 451: Workshop in School Librarianship.** 0-3-3. Preq., professional school experience and consent of instructor. An in-depth study of school library learning center programs. May be repeated for credit when topics vary. Su.

LIFE SCIENCES

- 101: Orientation.** 0-1-1. Basic rules, policies, history, and organization of the University with special application to life sciences. F,Sp.
- 200: Introduction to Environmental Sciences.** 0-3-3. Basic laws, principles and issues related to the causes, effects and controls of environmental problems. Man-environment interaction. Su,F,W,Sp.
- 300: Principles of Genetics.** 0-3-3. Fundamental laws of heredity as applied to plants, animals and man. A basic course for students in all fields of study. Su,F,W,Sp.
- 301: Basic Genetics Laboratory.** 3-0-1. Fundamental experiments designed to show application of laws of inheritance in selected organisms. Su,F,W,Sp.
- 333: European Influences on Modern Science and Medicine.** 0-3-3. Preq., sophomore standing or consent of instructor. European philosophers and scientists and their contributions to modern science with emphasis on Greeks and Romans. Su.
- 420: Statistical Methods.** 0-3-3. Preq., consent of the instructor. Methods of designing experiments and analyzing biological data. Su,F,W,Sp.
- 425: Special Problems.** 1-3 hour (s) credit. (6). Consent of instructor. Credit depends on the nature of the problem and work accomplished. Su,F,W,Sp.
- 456: Technology and the Bioenvironment.** 0-3-3. Principles of waste management, pollution control and environmental conservation. Topics include sources, effects, extent and control of air, water, soil and solid waste pollution. Su,F,W,Sp.
- 509: Life Sciences Seminar.** 0-1-1. (2) Survey of literature on current topics on state-of-the-art in either Bacteriology, Botany, Microbiology, or Zoology, where appropriate.
- 530: Life Sciences Special Problems.** 1-6 hours credit as limited by the Department. Permission of the instructor and the Department head. Individual advanced study of Special Problems in Botany, Bacteriology, Microbiology, or Zoology, where appropriate.
- 551: Research and Thesis.** Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six hours.

MANAGEMENT

- 105: Introduction to Business.** 0-3-3. The university organization, curricula, learning process, educational practices; careers in business; society and administration of the business firm. (Open only to freshmen and sophomores. Honors class in fall quarter for freshmen students having ACT composite of 25 or higher.) Su,F,W,Sp.
- 201: Supervisory Techniques.** 0-3-3. Basic supervision of small employee groups including employee hiring and dismissal, planning and organizing work assignments, evaluating performance, necessary records, and legal aspects. (Associate degree credit only in CAB) F,W,Sp.
- 311: Organizational Behavior, Planning and Control.** 0-3-3. Preq., Junior standing. Nature and development of management theory, individual and group behavior, leadership, communications and organizational design, organizational planning and control. Su,F,W,Sp.
- 340: Small Business Management and Entrepreneurship.** 0-3-3. Organizing and operating the small business, with special attention to personal qualifications, capital requirements, location, sources of assistance. F,Sp.
- 444: Business Simulation.** 0-1-1. Preq., senior standing College of Administration and Business. Sequential decision making structured around a model of a business operation in which the student assumes the role of managing a simulated firm.
- 446: Transportation.** 0-3-3. Development of domestic transportation systems; rate theory and rate-making practices; principles and practices of transport regulation by government agencies.
- 447: Personnel Law.** 0-3-3. A survey of landmark cases involving the labor movement, federal and state wage and hour laws, industrial relations and current issues in personnel law. Sp.
- 460: Purchasing and Materials Controls.** 0-3-3. Preq., Marketing 300. Principles of procurement and analysis of purchasing problems, with emphasis on quality and quantity control, pricing policy inspection, and standards of performance. W.
- 465: Industrial Traffic Management.** 0-3-3. Preq., senior standing. Analysis of functions comprising physical distribution; interaction of system components with emphasis on carrier types, rates, regulation and services.
- 470: Personnel Management.** 0-3-3. A study of the functions and procedures in personnel management with emphasis on the procurement, development, maintenance and utilization of the work force. Su,F,W,Sp.
- 472: Compensation Systems.** 0-3-3. Design of total compensation system with emphasis on compensation policies, programs, and practices including job analysis, position descriptions, job evaluation and job design. W.
- 475: Industrial Management.** 0-3-3. Preq., Quantitative Analysis 333. Management principles as applied to industrial production introducing such topics as production costs, quality control, time study, work simplification, scheduling, plant layout, and labor-management relations. W.
- 476: Systems and Operations Management.** 0-3-3. Preq., Quantitative Analysis 430. Advanced studies and case problems in the design, management and control of industrial operations. Topics include OR techniques, inventory and queuing models, forecasting, scheduling, and optimization.
- 478: Seminar in Personnel and Industrial Relations.** 0-3-3. Preq., Management 470. Readings, problems and cases in human resource management. Analysis of current problems and future prospects are emphasized. F.
- 485: International Business Management.** 0-3-3. Readings and cases in international business: governmental activities, regionalism, market opportunities, structure of international companies, company intelligence, human relations, operating policies, procedures and problems.
- 495: Administrative Policy.** 0-3-3. Preq., all other Common Body of Knowledge courses and senior standing in the College of Administration and Business. Administrative policy determination through integration and application of knowledge gained in previous courses; emphasizes interrelationships of major functions

of business under conditions of uncertainty; utilizes case approach. Su,F,W,Sp.

- 520: Directed Research and Readings.** 0-3-3. Research methodology; problems requiring independent organization of research, implementation, outline of solution, and preparation of reports. Emphasis placed on problem-solving for policy-making decisions.
- 521: Administrative Policy.** 0-3-3. A synthesis of materials learned in accounting, management, marketing, economics, and finance. Specific problems and actual cases as basis for executive decision-making.
- 537: Human Resources Management.** 0-3-3. Preq., Management 311 or equivalent. An advanced course in human resource management with emphasis on the practical application of theory to organizational manpower problems and issues. W.
- 539: Organization Theory.** 0-3-3. A macro approach to the study of complex organization emphasizing current research findings. W.
- 544: Advanced Productions and Operations Management.** 0-3-3. Preq., Quantitative Analysis 333 or equivalent. An in-depth analysis of production/operations concepts, methods, and techniques from a systems perspective. F.
- 545: Evolution of Management Thought.** 0-3-3. Seminar with emphasis on important contributions to modern management thought as evidenced in the writings of major contributors. F, even.
- 546: Current Issues in Management.** 0-3-3. Seminar in the problems of top management as they relate to the firm's environment. Su.
- 547: Seminar in Industrial Relations.** 0-3-3. An in-depth study of current issues in the area of labor-management relations. Sp.
- 571: Organizational Behavior.** 0-3-3. Preq., Satisfactory background in behavioral science area. A seminar with emphasis on theories and concepts of the behavioral sciences relevant to the internal operations of the organization.
- 573: Seminar in Behavioral Research Methodology.** 0-3-3. Analysis and intensive study of research and research methodology utilized in the behavioral sciences. The method of science as applied to management is emphasized.
- 581: Doctoral Seminar in Research.** 0-3-3. Research on individual topics. Should be taken near the completion of coursework. Su.

MARKETING

- 235: Fundamentals of Retail Store Operation.** 0-3-3. An introduction to operation of retail stores; retail salesmanship, purchasing control, and supervision. (Associate degree credit only in CAB) F,W.
- 300: Marketing Principles and Policies.** 0-3-3. Preq., Economics 201 or 215 and junior standing. Marketing functions; institutions; policies and strategies with their business, economic, and social implications. Su,F,W,Sp.
- 307: Salesmanship.** 0-3-3. Preq., junior standing. A study of the selling process with emphasis on the economic aspects of salesmanship and the role of the salesman in buyer-seller relationships. W,Sp.
- 320: Consumer Behavior.** 0-3-3. Preq., junior standing. A study of the consumer and the relation to the marketing process. Su,F,W,Sp.
- 420: Business Advertising.** 0-3-3. Preq., Marketing 300. A study of the analysis of principles of successful advertising enabling the student to appraise their effectiveness as marketing tools and their social and economic significance.
- 425: Sales Management.** 0-3-3. Preq., Marketing 307 or consent of instructor. Relation of sales department to other departments; types of sales organizations, management of sales force; market analysis; price policies, sales budgets; distribution costs. Sp.
- 435: Retailing Management.** 0-3-3. Preq., Marketing 300 and senior standing. Merchandise distribution by retail organization;

emphasis on retailing in the distributive system and problems of management and control. W.

- 473: Marketing Administration.** 0-3-3. Preq., Marketing 320, 420, or 435, or consent. An in-depth analysis and use of marketing principles to construct marketing plans and decisions utilizing current studies and readings. F,Sp, Su.
- 482: Marketing Research.** 0-3-3. Preq., Quantitative Analysis 333. A consideration of marketing research as a tool management; application of research techniques to various marketing problems. W.
- 485: International Marketing.** 0-3-3. Preq., Marketing 300. International marketing opportunities and principles; marketing tools as a means of adapting the individual domestic business firm and its marketing methods to the international environment.
- 530: Marketing Management.** 0-3-3. A course to assist the marketing manager in analyzing management problems involving pricing, advertising and other promotion, sales management, product decision, marketing research.
- 531: Marketing Theory.** 0-3-3. Analysis of the evolution of marketing theory.
- 532: Seminar in Price Policies.** 0-3-3. Problems and practices involved in formulating and administering price policies.
- 533: Advanced Marketing Research.** 0-3-3. An in-depth study of research philosophy, theory, objectives, techniques, and problems as applied to marketing.
- 534: Marketing Dynamics.** 0-3-3. A course designed to examine the marketing organism and its adjustments to the legal, political, economic, social, and cultural environment.
- 535: Seminar in Marketing.** 0-3-3. An examination of concepts and research findings related to selected topics in marketing. Presentation and critical evaluation of reports from related disciplines.

MATHEMATICS

- 099: Developmental Math.** 0-4-4. Dependent on Math Placement Score. Basic mathematical concepts through introductory algebra. Topics covered include arithmetic operations with real numbers, algebra fundamentals through operations with polynomials, rational expressions, and solving linear equations. Su,F,W,Sp.
- 110: Intermediate Algebra.** 0-3-3. Preq., Dependent upon Math Placement Score. Linear equations and inequalities in one and two variables, polynomials, rational expressions, exponents, radicals, complex numbers, and quadratic equations. Su, F, W, Sp.
- 111: College Algebra.** 0-3-3. Preq., Dependent on Math Placement Score. Sets, inequalities, functions, systems of equations, determinants, quadratic equations, theory of polynomials, exponential and logarithmic functions, arithmetic and geometric sequences, binomial theorem. Su,F,W,Sp.
- 112: Trigonometry.** 0-3-3. Preq. or Coreq., Math 111. Solution of right triangles, reduction formulas, functions of multiple angles, trigonometric equations, inverse functions, and complex numbers. Su,F,W,Sp.
- 113: Plane Geometry.** 0-3-3. A course in plane Euclidean geometry for a student who is planning to teach high school geometry or for a student who has not had plane geometry in high school. Sp.
- 114: Business Mathematics.** 0-3-3. Dependent on Math Placement Score. Decimals, percentages, discounts, markups, overhead, depreciation, profit, interest, installment buying, charts, graphs, averages, interpretation of computer printouts. F,W,Sp.
- 115: Mathematics of the Metric System.** 0-1-1. A study of the metric system. Units of measure, changing units, estimation in metric units, conversion from English to metric and metric to English units, and applications.
- 116: Introduction to Calculating.** 0-1-1. Preq., Math 110, or 114 or consent of instructor. A general, nontechnical, academics course for students with no formal training in computer science. Sp.
- 117: Precalculus Math.** 0-5-5. Preq., Dependent on Math Placement Score. Inequalities, functions, systems of equations; matrices; trigonometric functions; identities and equations; logarithmic and exponential functions; theory of polynomials. Credit will not be given for both this course and Math 111 or 112.
- 125: Finite Mathematics.** 0-3-3. Preq., Math 110. Topics include first and second degree equations, linear inequalities, first and second degree functions, matrix algebra, systems of linear equations, mathematics of finance, probability, exponential and logarithmic functions, some topics in statistics. Su,F,W,Sp.
- 220: Applied Calculus.** 0-3-3. Preq., Mathematics 111 and Mathematics 112. For students in the Architecture and Construction Technology curriculums. Functions and graphs, the derivative, applications of derivatives, indefinite integrals, application of definite integrals. F,W,Sp.
- 222: Calculus for Business Administration and Economics.** 0-3-3. Preq., Mathematics 111. Functions and graphs, the derivative, the indefinite integral and the definite integral; applications as applied to business and economics. F,W,Sp.
- 230: Analytic Geometry and Calculus.** 0-3-3. Preq., Mathematics 111 and 112. Also dependent on Math Placement Score. Introduction to analytic geometry, differentiation of algebraic functions, applications of the derivatives, and the antidifferentiation of algebraic functions. Su,F,W,Sp.
- 231: Analytic Geometry and Calculus.** 0-3-3. Preq., Mathematics 230. Applications of integration, analytic geometry, exponential and logarithmic functions, trigonometric functions, and techniques of integration. Su,F,W,Sp.
- 232: Analytic Geometry and Calculus.** 0-3-3. Preq., Mathematics 231. Applications of integrals, determinant forms, infinite series, plane curves, and polar coordinates, vectors and solid analytic geometry. Su,F,W,Sp.
- 303: Mathematics for Elementary Teachers.** 0-3-3. Preq., Mathematics 111. Development of the structure of the real number system, from the concept of sets through natural numbers to integers to rational numbers to the real numbers, using algorithms and number theory concepts. F,W,Sp.
- 304: Mathematics for Elementary Teachers.** 0-3-3. Preq., Mathematics 303. Informal geometry and geometric constructions using compass and straightedge, the Pythagorean Theorem and notions of measurement using metric units. Probability and statistics from an experimental point of view. Su,F,Sp.
- 307: Contemporary Mathematics for Secondary School Teachers.** 0-3-3. Preq., Mathematics 112, or 113. Sets, relations, functions, equations, inequalities, proofs, structure of algebra, evaluation of experimental programs in mathematics. Sp.
- 308: Introduction to Linear Algebra.** 0-3-3. Preq., Mathematics 230. Matrices, systems of linear equations, vectors, vector spaces, linear transformations, eigenvalues and eigenvectors. Su,F,W,Sp.
- 313: Introductory Numerical Analysis.** 0-3-3. Preq., Mathematics 231 and Computer Science 102. Introduction to numerical techniques in finding roots of equations, solving systems of equations, approximating functions, derivatives and integrals. F,Sp.
- 318: Introduction to Abstract Algebra.** 0-3-3. Preq., Mathematics 231. Fundamental set concepts, groups, rings integral domains, fields, polynomials. F.
- 330: Analytic Geometry and Calculus.** 0-3-3. Preq., Mathematics 232. Solid analytic geometry, vector-valued functions, partial differentiation, multiple integrals, topics in vector calculus. Su,F,W,Sp.
- 340: Introduction to Real Analysis.** 0-3-3. Preq., Mathematics 330. A rigorous introduction to the calculus of functions of one real variable.
- 350: Ordinary Differential Equations.** 0-3-3. Preq., Mathematics 330 or consent of instructor. Equations of first order and first degree, singular solutions, applications to geometry and physics, linear equations of higher order. Su,F,W,Sp.

- 375: Mathematical Methods in Engineering.** 0-3-3. Preq., Mathematics 330 or consent of instructor. Selected topics from Numerical Methods, Statistics, and Probability with applications to engineering problems. F,W,Sp.
- 401: College Geometry.** 0-3-3. Preq., Mathematics 230 or consent of instructor. Logical systems and basic laws of reasoning, axiomatic geometry, selected Euclidean geometry, harmonic elements and cross ratio, non-Euclidean and metric projective geometries. W.
- 405: Linear Algebra.** 0-3-3. Preq., Mathematics 308 or consent of instructor. Study of linear systems, matrices, and algebra of matrices, determinants, vector spaces and subspaces, linear transformations and representations by matrices.
- 407: Partial Differential Equations.** 0-3-3. Preq., Mathematics 350. Techniques for solving linear first order equations in several variables. Formation and solving of second order initial boundary-value problems using Fourier series, Fourier integral methods. Sp.
- 410: Advanced Engineering Mathematics.** 0-3-3. Preq., Mathematics 330. Power series, Taylor's formula, applications, complex series, Fourier series, functions of several variables.
- 411: Advanced Engineering Mathematics.** 0-3-3. Preq., Mathematics 330. Vectors, fundamental operations and applications, linear vector spaces and matrices, coordinates and function, transformation theorems, application.
- 412: Vector and Tensor Analysis.** 0-3-3. Preq., Mathematics 411 or consent of instructor. The algebra of vectors, differential vector calculus, differential geometry, integration, static and dynamic electricity, mechanics, hydrodynamics, and electricity, tensor analysis and Riemann geometry, further applications of tensor analysis.
- 413: Foundations and Fundamental Concepts.** 0-3-3. Preq., Mathematics 231 or consent of instructor. Mathematics before Euclid, Euclid's "elements," non-Euclidean geometry, Hilbert's "Grundlagen," algebraic structure, the modern mathematical method, sets, logic and philosophy.
- 414: Numerical Analysis.** 0-3-3. Preq., Math 308, Knowledge of FORTRAN, or consent of instructor. Roots of polynomial and other nonlinear equation. Solutions of systems of simultaneous equations. Numerical applications of matrix theory and linear algebra. Interpolating polynomials.
- 415: Numerical Analysis.** 0-3-3. Preq., Math 350, Math 414, or consent of instructor. Curve fitting techniques. Function approximation techniques. Numerical differentiation. Numerical integration. Numerical solution of differential equations and systems of differential equations and boundary value problems.
- 416: Abstract Algebra.** 0-3-3. Preq., Mathematics 318 or consent of instructor. Number theory, equivalences, and congruences, groups, ideals. F.
- 430: Projective Geometry.** 0-3-3. Preq., Mathematics 308, 330 or consent of instructor. Ideal elements, duality, harmonic sets, projectivity, projective theory of conics, theory of poles and polars.
- 440: Linear Programming.** 0-3-3. Preq., Mathematics 230 and 308 or consent of instructor. Characteristics of linear programming problems, properties of linear programming solutions, the simplex method with variations, optimality analysis, the dual problem, the transportation problem.
- 441: Non-linear Programming.** 0-3-3. Preq., Mathematics 440. Advanced topics in linear programming, quadratic programming, dynamic programming.
- 445: Theory of Functions of Complex Variables.** 0-3-3. Preq., Mathematics 330. Complex numbers, analytic functions, elementary functions, mapping elementary functions, integrals, power series, residues, poles, conformal mappings, applications of conformal mappings.
- 450: Ordinary Differential Equations.** 0-3-3. Preq., Mathematics 340 and 350 or consent. First-order equations, second-order linear equations, general linear equations and systems, existence and uniqueness theorems, plane autonomous systems.
- 460: Number Theory.** 0-3-3. Preq., Mathematics 318. Divisibility properties of integers, prime numbers, congruences, number theoretic functions.
- 470: Introduction to Topology.** 0-3-3. Preq., consent of instructor. Introduction of concepts, metric spaces, countability axioms, separation axioms, connectedness, compactness, product spaces, continuous mappings and homeomorphisms, homotopy, quotient spaces.
- 480: Introductory Analysis.** 0-3-3. Preq., Mathematics 340. A study of functions in metric spaces-limits, continuity, integration, uniform convergence, approximations.
- 490: Topics in Mathematics.** 0-3-3. Various topics in the field of Mathematics. May be repeated for credit.
- 502: Special Functions in Applied Mathematics.** 0-3-3. Preq., Mathematics 330. Orthogonal functions, solutions of differential equations of Legendre, Gauss, Hermite, Tchebysheff, Laguerre, and Bessel, properties of these solutions, coordinate system, and boundary value problems.
- 507: Partial Differential Equations.** 0-3-3. Preq., Mathematics 407. Continuation of Mathematics 407. Existence, uniqueness, and representation of solutions, problems in higher dimensions, Green's formulas, multiple Fourier series, Fourier transforms, boundary value problems in infinite domains.
- 510: Functional Analysis.** 0-3-3. Preq., Mathematics 405, 470. Linear spaces, normed spaces, metric spaces, Banach spaces, Hilbert spaces.
- 511: Functional Analysis.** 0-3-3. Preq., Mathematics 510. Linear topological spaces, metric spaces, Banach spaces, Hilbert spaces.
- 515: Numerical Analysis.** 0-3-3. Preq., Consent of instructor. Numerical analysis of problems in linear algebra, norms for vectors and matrices, convergence properties of sequence and series of vectors and matrices, convergence of iterative techniques for linear systems. Numerical differentiation and integration. Numerical solutions of differential equations using infinite series of linear operators.
- 520: Theory of Ordinary Differential Equations.** 0-3-3. Preq., Mathematics 450. Existence and uniqueness theorems, dependence of solutions on a parameter, linear and nonlinear differential equations, differential inequalities, oscillation and comparison theorems, stability of solutions, perturbation theory.
- 530: Algebraic Topology.** 0-3-3. Preq., Mathematics 470 and 416. Categories and functors, Eilenberg-Steenrod axioms, construction of the homology and cohomology groups, homology of finite complexes, universal coefficient theorems, Eilenberg-Zilber theorem, the cohomology ring, the cross product operation, fundamental group, higher homotopy groups.
- 544: Modern Operational Mathematics.** 0-3-3. Preq., Mathematics 350. Theory and applications of transforms of Laplace and Fourier, inverse transforms by complex variable methods. Applications to analysis and linear operations.
- 545: Complex Analysis.** 0-3-3. Preq., Mathematics 445. Rigorous development of limits, continuity, analyticity, sequences, uniform convergence, power series, exponential and trigonometric functions, conformality, linear transformations, conformal mapping and elementary Riemann surfaces.
- 546: Complex Analysis.** 0-3-3. Preq., Mathematics 545. Continuation of Mathematics 545. Fundamental theorems in complex integration, local properties of analytic functions, calculus of residues, harmonic functions, entire functions, normal families, conformal mappings and Dirichlet's problem, elliptic and global analytic functions.
- 550: Algebraic Geometry.** 0-3-3. Preq., Mathematics 330 and 405 or consent. Homogeneous linear equations and linear dependence, projections and rigid motions, homogeneous cartesian coordinates, linear dependence of points and lines, point geometry and line geometry, harmonic division and cross ratio, one-and-two dimensional projective transformations.
- 562: Advanced Linear Algebra.** 0-3-3. Preq., Mathematics 405. Eigenvalues, linear functionals, bilinear and quadratic forms, orthogonal and unitary transformations, normal matrices.

- 566: Advanced Abstract Algebra.** 0-3-3. Preq., Mathematics 416. Concepts from set theory, groups, rings, integral domains, fields, extensions of rings and fields, modules, ideals.
- 578: Probability Theory.** 0-3-3. Preq., Mathematics 480 or consent of instructor. Probability spaces and random variables, characteristic functions and distribution functions, probability laws and types of laws, limit distributions, independent and dependent sums of random variables.
- 580: Mathematical Analysis.** 0-3-3. Preq., Mathematics 480. Real number system, measures with emphasis on Lebesgue measure, abstract integration with emphasis on the Lebesgue integral.
- 581: Mathematical Analysis.** 0-3-3. Preq., Math 580. Metric Spaces, Topological Spaces and Banach Spaces.
- 584: Topics in Algebra.** 0-3-3. May be repeated for 3 hours credit each time.
- 586: Topics in Analysis.** 0-3-3. May be repeated for 3 hours credit each time.
- 587: Topics in Applied Mathematics.** 0-3-3. May be repeated for 3 hours credit each time.
- 588: Topics in Topology.** 0-3-3. May be repeated for 3 hours credit each time.

MECHANICAL ENGINEERING

- 100: Introduction to Mechanical Engineering.** 3-0-1. An introduction to mechanical engineering the curriculum and the profession, its challenges and its rewards. F.
- 200: Fundamentals of Energy.** 0-3-3. Preq., Mathematics 108. Science Elective for non-engineering students. Study of energy: sources; scientific laws governing conversions; environmental effects; economic, social and political developments; and individual consumer's role.
- 202: Mechanical Engineering Seminar.** 3-0-1. Preq., Sophomore standing. A continuation of Mechanical Engineering 100. A review of the past year and a look ahead. F.
- 211: Materials of Engineering I.** 3-1-2. Preq., Chemistry 102 and 104. A study of the basic principles which relate the properties of materials to their internal structures. Ferrous metals. F,W.
- 212: Materials of Engineering II.** 0-2-2. Preq., Mechanical Engineering 211. Engineering properties of non-ferrous metals and non-metallic materials. Classification systems, material selection procedures. Sp.
- 221: Manufacturing Processes I.** 3-1-2. Preq., Mathematics 230 and Engineering 151. A study of the processes used in manufacturing machine parts. Designing for manufacturability. Laboratory is operational practice and demonstrations of machine tool, foundry, and welding. W,Sp.
- 291: Mechanical Engineering Computations.** 3-1-2. Preq., Engineering 102, credit or registration in Mathematics 350. A study of the pervasive role of the computer in mechanical engineering. Numerical techniques, application packages, personal productivity tools, and microprocessor applications in mechanical engineering. W,Sp.
- 300: Mechanical Engineering Seminar.** 3-0-1. Preq., Junior standing. A continuation of Mechanical Engineering 202, a review of the past year and a look ahead. F.
- 322: Manufacturing Processes II.** 3-1-2. Preq., Mechanical Engineering 221. Coreq., Engineering Mechanics 311. Fundamentals of advanced manufacturing techniques and automated manufacturing. CAD/CAM systems and CNC machine tools. Parts plant and process design for automatic manufacturing. F.
- 326: Mechanical Equipment for Buildings.** 0-3-3. Preq., Physics 210. Not available to mechanical engineering majors. Principles of water supply, plumbing, heating, and air conditioning and their application to practical design problems. Sp.
- 331: Thermodynamics I.** 0-3-3. Preq., Mathematics 231 and Physics 201. Fundamental concepts, properties of a pure substance, work, heat, first and second laws of thermodynamics, entropy, cycle analysis. F,W,Sp.
- 332: Thermodynamics II.** 0-3-3. Preq., Mechanical Engineering 331. Irreversibility, availability, power and refrigeration cycles, ideal gas mixtures, design of thermal systems, combustion, property relations. W.
- 342: Heat Transfer.** 0-3-3. Preq., Engineering Mechanics 321, Mechanical Engineering 291, 331. Fundamentals of heat transfer by conduction, convection and radiation. Introduction to thermal design. Sp.
- 361: Advanced Mechanics of Materials.** 0-3-3. Preq., Engineering Mechanics 203, 311 and Mechanical Engineering 212. Theories of stress and strain, failure criteria, energy methods, design for static strength, design for fatigue strength. Sp.
- 381: Basic Measurements.** 3-2-3. Preq., Engineering 102, Electrical Engineering 226, English 303. Experimental methods, data reduction and analysis, report writing, a survey of instrumentation, the fundamentals of measuring equipment. Sp.
- 400: Mechanical Engineering Seminar.** 3-0-1. Preq., Senior standing. A continuation of Mechanical Engineering 300, a review of the past year and a look toward the future. F.
- 432: Renewable Energy Design.** 0-3-3. Preq., Mechanical Engineering 332 or equivalent. Analysis and design of systems which utilize renewable energy sources, such as solar energy, wind energy and geothermal energy.
- 434: Cryogenic Systems.** 0-3-3. Preq., Mechanical Engineering 332 or equivalent. Analysis and design of systems which produce, maintain, or utilize low temperatures; liquefaction systems; refrigeration systems; separation and purification systems; storage systems.
- 435: Internal Combustion Engines.** 0-3-3. Preq., Mechanical Engineering 332. Theory of IC engines. Fuels, combustion and thermodynamics. Carburetion and fuel injection. Lubrication. Mechanical design of a typical engine.
- 436: Air Conditioning and Refrigeration.** 0-3-3. Preq., Mechanical Engineering 332 and 342. Analysis and design of heating, ventilating and air conditioning systems for residential, commercial, and industrial applications.
- 444: Transport Phenomena.** 0-3-3. Preq., Mech. Engr. 342. A study of the principles and equations governing the transfer of momentum, heat and mass with emphasis on similarities and design of transport systems.
- 446: Advanced Fluid Mechanics.** 3-2-3. Preq., Engineering Mechanics 321 and Math 350. Principles of viscous fluid flow including dimensional analysis and similarity, duct flows, boundary layer flow, turbomachinery, flow measurement and control and design of fluid systems.
- 448: Gas Dynamics.** 0-3-3. Preq., Engineering Mechanics 321 and Mathematics 350. Study of the fundamental laws applied to compressible fluid flow. Isentropic flow, normal and oblique shocks, Prandtl-Meyer, Fanno, Rayleigh flow and supersonic design.
- 449: An Introduction to NASTRAN.** 3-0-1. An introductory course in the implication of MAC/NASTRAN structural analysis. Su.
- 450: Special Problems.** 1-4 hours credit. Preq., senior and consent of instructor. Topics selected will vary from term to term for the purpose of covering selected topics of current importance or special interest.
- 451: Thermal Design.** 3-2-3. Preq., Mechanical Engineering 332 and 342. Design of thermal components and systems. F.
- 454: Computer Applications for Small Engineering Firms.** 3-0-1. Preq., Mechanical Engineering 291 or consent of instructor. Introduction of uses of micro and minicomputers in small engineering firms and other similar technical companies and organizations. Su.
- 455: Heat Exchanger Design.** 0-3-3. Preq., Mechanical Engineering 342, 361. A study of the thermal and mechanical design of heat exchangers.
- 462: Machine Design I.** 0-3-3. Preq., Mechanical Engineering 291 and 361. Application of principles of strength of materials to the design of typical machine elements. F.
- 463: Machine Design II.** 3-2-3. Preq., Mechanical Engineering 462. Kinematic analysis, synthesis, and design of linkages,

cams, and gears. Dynamic analysis and design of mechanisms and balancing. W.

- 465: Introduction to Computer-Aided Design.** 3-0-1. Preq., Mechanical Engineering 463 or consent of instructor. Identification of important application areas and supporting technologies for successful application of digital computers in mechanical design process. Su.
- 466: Robotics.** 0-3-3. Preq., Mechanical Engineering 462 and 472. A study of the kinematic, dynamic, control and programming fundamentals associated with industrial robots and programmable manipulators. Design of robots and systems.
- 467: Computer-Aided Design.** 0-3-3. Preq., Mechanical Engineering 462 or consent of instructor. An introduction to the application of several modern computing techniques and technologies to the mechanical engineering design process.
- 468: Experimental Stress Analysis.** 3-2-3. Preq., Mechanical Engineering 361 or Civil Engr. 346 and Electrical Engr. 226. A thorough study of bonded resistance strain gages and photoelasticity and a survey study of other areas of experimental stress analysis.
- 469: Prevention of Mechanical Failure.** 0-3-3. Preq., Mech. Engr. 463. Analysis, prediction and prevention of failures in a structure or machine part during the design phase.
- 471: Dynamic Systems I.** 0-2-2. Preq., Mechanical Engineering 291, Engineering Mechanics 203 and Electrical Engineering 336. Development of the governing dynamic equations for mechanical, electrical, hydraulic and pneumatic systems. Laplace transform solutions of dynamic systems. F.
- 472: Dynamic Systems II.** 0-2-2. Preq., Mechanical Engineering 471. Transient and steady-state response of dynamic systems. Transfer functions, introduction to automatic control systems and digital control. Control system design. W.
- 476: Feedback Control Systems.** 3-2-3. Preq., Mechanical Engineering 472. The analysis, design and synthesis of mechanical systems employing feedback control. Methods of determining system stability. Typical mechanical control elements and their transfer functions.
- 477: Mechanical Vibrations.** 0-3-3. Preq., Math 350, Mechanical Engineering 361. Mathematical modeling of single and multiple degrees of freedom. Free vibration and response to excitation. Lumped and continuous systems, mode and frequency analysis, numerical methods.
- 478: Engineering Acoustics.** 0-3-3. Preq., Math 350. Analysis and design of systems for noise control, including vibration isolation, silencers, room acoustic treatment and acoustic barriers.
- 482: Mechanical Engineering Laboratory I.** 3-1-2. Preq., Mechanical Engineering 381, 342 and 361. Experiments in thermal sciences and solid mechanics. Data acquisition, data analysis, design of experiments, interpretation and presentation of results. W.
- 483: Mechanical Engineering Laboratory II.** 3-0-1. Preq., Mechanical Engineering 482. Design and performance of laboratory experiments in mechanical engineering. Sp.
- 492: Mechanical Engineering Design I.** 3-1-2. Preq., Mechanical Engineering 212, 322, 451, 462 and Engineering 401. Open-ended design problems calling for the integration of thermal sciences, machine design, economics, etc. W.
- 493: Mechanical Engineering Design II.** 3-1-2. Preq., Mechanical Engineering 492 and 463. A continuation of Mechanical Engineering 492. Sp.
- 495: Computational Methods in Engineering Problems.** 3-0-1. Preq., undergraduate engineering degree or consent of instructor. Introductory course in methods for computer solution of typical engineering problems with applications. Su.
- 496: Computational Techniques in Mechanical Engineering.** 0-3-3. Preq., Mechanical Engineering 342. The use of the digital computer in achieving numerical solutions to typical problems in the engineering design and analysis of thermal fluid and mechanical systems.
- 497: Finite Element Methods for Engineers.** 0-3-3. Preq., Mechanical Engineering 342 and 361. Introduction to approximation methods in engineering using finite elements. Physical and mathematical theory, computer applications.
- 498: Microcomputer Applications in Mechanical Engineering.** 3-2-3. Preq., Mechanical Engineering 291 and senior standing. The application of microcomputer systems in the analysis, design, testing and manufacturing of mechanical engineering systems.
- 500: Energy, Sources and Utilization.** 0-3-3. Energy sources uses and conservation; physical laws governing energy conversion and energy transfer; economic, political and environmental problems related to energy.
- 502: Advanced Machine Design.** 0-3-3. The study of various topics from advanced mechanics as are applicable in the design of machines.
- 524-525-526: Graduate Seminar.** 0-1-1 each. Surveys, investigations, and discussions of current problems in mechanical engineering. Courses may be repeated.
- 531: Advanced Thermodynamics.** 0-3-3. Fundamental laws of thermodynamics; entropy and entropy production; kinetic theory of gases; statistical thermodynamics; quantum thermodynamics for various systems.
- 542: Advanced Heat Transfer I.** 0-3-3. Steady and transient conduction heat transfer; analytical solutions; approximate solutions; numerical methods.
- 543: Advanced Heat Transfer II.** 0-3-3. Continuation of Mechanical Engineering 542. Principles of forced and natural convection in laminar and turbulent flow; thermal radiation.
- 545: Potential Flow.** 0-3-3. Basic principles and analytical methods for the motion of an inviscid, incompressible fluid. Eulerian equations. Conformal transformation. Mapping of flows. Rotation, circulation, and vorticity.
- 546: Viscous Flow I.** 0-3-3. Study of the governing principles and methods in viscous fluid flow. Solutions of the integral and differential equations for laminar flow. Digital computer applications.
- 547: Viscous Flow II.** 0-3-3. Preq., Mechanical Engineering 546. Study of transition, turbulence, and compressibility in viscous flow. Theory of stability of laminar flows. Fundamentals of turbulent flow.
- 550: Special Problems.** 1-4 semester hours. Advanced problems in mechanical engineering. The problems and projects will be treated by current methods used in professional practice.
- 552: Heat Exchanger Design.** 0-3-3. A study of the thermal and mechanical design of heat exchangers, regenerators, and radiators.
- 553: Thermal Stresses.** 0-3-3. Thermal stresses in structures; plane stress problems. thermal stresses in plates and shells; thermoelastic instability; thermal fatigue, creep and inelastic thermal stresses at high temperatures.
- 563: Theory of Elasticity.** 0-3-3. General equations of elasticity; plane stress and plane strain; torsion and flexure of bars; Hertz contact stresses.
- 564: Plates and Shells.** 0-3-3. Pure bending of plates; laterally-loaded plates; membrane theory of shells; bending of cylindrical and spherical shells.
- 566: Design Optimization.** 0-3-3. Techniques for optimal design of mechanical engineering systems with emphasis on the role of computer-aided design systems.
- 568: Advanced Vibrations.** 0-3-3. Analytical and numerical treatment of nonlinear and multidegree-of-freedom vibration problems in mechanical engineering.
- 569: Robot Manipulators.** 0-3-3. The application of the basic principles of kinematics, dynamics, automatic control, computer programming, and human factors to the development of general purpose, programmable robot manipulators.
- 571: Advanced Engineering Dynamics.** 0-3-3. Fundamentals of Newtonian dynamics principles of work and energy, D'Alembert's principle, Hamilton's principle, LaGrange equation. Central force motion, virial theorem. Rigid body motion and robotics.

- 572: Variational Principles in Mechanics.** 0-3-3. Basic concepts, comparison of vectorial and variational treatment of mechanics. Generalized coordinates, kinetic energy and Riemannian geometry, work function and generalized force. Calculus of variations.
- 575: Advanced Mechanical Systems Controls I.** 0-3-3. The analysis and design of controllers for dynamic mechanical systems. System identification and plant controller response matching. Controllers for typical thermal and mechanical systems.
- 591: Mechanical Engineering Analysis I.** 0-3-3. Mathematical modeling of engineering systems. Physical interpretation of ordinary and partial differential equations and methods of solution.
- 592: Mechanical Engineering Analysis II.** 0-3-3. A continuation of ME 591 with emphasis on approximate techniques for formulating and solving mathematical models of physical systems.
- 593: Advanced Finite Element Methods.** 0-3-3. Development of the finite methods element using the variational formulation. Applications in structures, fluid mechanics and heat transfer.
- 641: Aerothermodynamics.** 0-3-3. Preq., Mechanical Engr. 543 and Mechanical Engr. 547. Study of governing principles of hypervelocity flight. Laminar and turbulent flow of a dissociating gas. Shock-wave boundary-layer interaction. Slip flow. Free-molecular flow.
- 650: Special Problems.** 1-4 semester hours. Preq., Consent of department head. Advanced problems in mechanical engineering. Special problems suitable for doctoral-level work.
- 651: Advanced Cryogenics.** 0-3-3. Preq., Mechanical Engineering 542. Study of mechanical regenerative cryocoolers and nonmechanical refrigeration systems used to achieve and maintain temperatures below 120 K.
- 672: Advanced Mechanical Systems Controls II.** 0-3-3. Preq., Mechanical Engr. 575, Electrical Engr. 510, or consent of instructor. Control systems for complex, compliant systems such as industrial robots. Adaptive systems and intelligent controllers.
- 692: Modeling of Man-Machine Interfaces.** 0-3-3. Preq., Mechanical Engr. 591. Techniques for mathematical and empirical modeling of man-machine interfaces with emphasis on the human-computer interface in its many varied forms.

MECHANICAL TECHNOLOGY

- 151: Pressure, Temperature, and Flow Measurement.** 3-1-2. A study of the principles and devices used in the measurement of pressure, temperature and flow. Sp.
- 215: Thermal Science.** 0-3-3. Preq., Mathematics 112. Temperature; heat; work; first law of thermodynamics; basic principles of heat transfer. F.

MEDICAL RECORD SCIENCE

- 100: Orientation to Medical Record Administration.** 0-1-1. History of Medical Records; overview of the medical record profession; policies, rules, and information concerning the medical record technology and medical record administration programs. F.
- 103: Introduction to Medical Terminology.** 0-3-3. A basic study of the language of medicine including word construction, definition and use of terms and an elementary study of the human anatomy, structures and functions with medical terminology application. F,W,Sp.
- 104: Introduction to Medical Record Science.** 0-3-3. Medical Record standards in hospitals; professional ethics; basic functions of a medical record department; nomenclature and classification systems; record linkage. W.
- 105: Laboratory Practice in Basic MR Procedures.** 3-0-1. Coreq. or Preq., MRS 104 Laboratory practice in admissions, discharge analysis, chart assembly, filing, release of information and data retrieval.
- 106: Medical Record Science Directed Practice.** 3-0-1. Coreq. or Preq., MRS 105. Directed practice in the medical record departments of health care facilities, practice in analyzing medical records, performing routine medical record procedures. Sp.
- 203: Medical Terminology and Transcription.** 6-2-4. Preq., MRS 103 and Office Administration 201 or equivalent typing skill. Introduction to medical transcription with emphasis on medical terminology and transcription of medical record forms. Sp,Su.
- 205: Health Statistics.** 0-2-2. Data collection methods, computation, and presentation of commonly reported health care statistics; definition of terms used in reporting health statistics; vital statistics. Sp.
- 210: Coding and Classifying Diseases and Procedures.** 0-3-3. Preq., MRS 103 and 280. coding using the latest edition of the International Classification of Diseases; other techniques for grouping or classifying cases. W.
- 211: Laboratory Practice in Coding.** 3-0-1. Coreq., MRS 210. Practical application and laboratory practice of coding and other methods of grouping episodes of care. W.
- 212: Directed Practice in Transcription and Statistics.** Preq., 106, 203, and 205. On-campus and off-campus practice in transcribing medical reports and accumulation and calculation of health-care statistics. F.
- 220: Governmental and Accreditation Requirements for Health Records.** 0-2-2. Standards applicable to health records in various types of facilities; functions of various departments and personnel within each facility; tumor registry; record linkage. F.
- 221: Intermediate Directed Practice in Hospitals and Non-hospital Settings.** 6-0-2. Preq., MRS 106, 220, 225. Clinical experience in health information systems in non-hospital sites; quality assurance studies, medicolegal policies and procedures in hospitals. W.
- 225: Trends, Legal and Quality Assurance.** 0-3-3. Current trends in health information systems; legal aspects of medical records; and techniques of patient care evaluation. F.
- 230: Directed Practice in Non-Hospital Settings.** 6-0-2. Preq., MRS 106 and 220. Application of medical record procedures in non-hospital settings. Sp.
- 231: Comprehensive Affiliation.** 24-1-5. Six week long full-time affiliation in health care facilities, concluding with a one-week seminar to review affiliation experiences. Su,F,W,Sp.
- 280: Fundamentals of Medical Science.** 0-3-3. Preq., Zoology 225 and 226. A study of the nature and cause of disease. F.
- 305: Legal Concepts of the Health Fields.** 0-2-2. A study of the principles of law as applied to the health field and medical record practice. W.
- 309: Fundamentals of Medical Science.** 0-2-2. Preq., MRS 280. The study of treatment and management of patients. W.
- 310: Fundamentals of Medical Science.** 0-2-2. Preq., MRS 280. A continuation of the study of treatment and management of patients. Sp.
- 314: Health Information Management.** 0-3-3. Preq., MRS 104, 210 and Management 311. Principles of management applied to the health information system data base and secondary indexes and registers created from the data base. Sp.
- 315: Directed Practice in Health Information Management.** 3-0-1. Preq., or Coreq., MRS 314. Clinical experience using various evaluation procedures to monitor the health information system. Sp.
- 401: Medical Record Science.** 3-3-4. Computation, Statistics, presentation and uses of health and vital statistics; data collection methods; definition of terms used in statistical reporting; laboratory practice in accumulating data, performing medical care evaluation studies. Sp.
- 403: Trends in Health Care Delivery.** 0-2-2 The changing health care field; legislation; governmental intervention in health care; patterns of delivery of health care. F.
- 404: Directed Experience.** 12-0-2. Preq., Consent of Director of Medical Record Administration Program. A supervised learning experience to develop insight, understanding and skill in the basic medical record procedures. Su,F,W,Sp.

- 405: Directed Experience.** 30-0-5. A supervised learning experience to develop insight, understanding and skill in specialized medical record procedures and management. Su,F,W,Sp.
- 406: Affiliation.** 25-0-4. An overview of the relationships of the parts of the total health information system in the clinical setting with emphasis on management. Su,F,W,Sp.
- 407: Problems in Medical Record Administration.** 0-2-2. Preq., Coreq., Medical Record Administration 406. A discussion of topics arising from students' study and experience in Medical Record Administration. Su,F,W,Sp.
- 408: Organization and Administration of Health Care Facilities.** 0-2-2. Organizational patterns in hospitals, long-term care facilities, and ambulatory care facilities; requirements of accrediting, licensing, and certifying agencies; medical record functions in long-term and ambulatory care settings. W.
- 412: Organization and Administration of the Medical Record Department.** 3-1-2. Preq., Management 311. Principles of management applied to the medical record department; laboratory practice in the use of management tools. W.
- 415: Research Methods.** 0-2-2. Preq., Statistics 200 and MRS 210. Data display techniques and research methodologies using clinical data. W.
- 420: Computers in Health Care.** 0-2-2. Preq., Quantitative Analysis 220 and 435. The design and cost effectiveness of health information system. A systems approach to management of health records.F

MUSIC

- 102: Theory.** 3-2-2. Preq., diagnostic exam. Beginning study of fundamentals of music covering the areas of notation, ear-training, sight singing, and functional keyboard. F.
- 103: Theory.** 3-2-2. Preq., Music 102. Continuation of 102 with increasing emphasis on common-practice harmonic vocabulary. W.
- 104: Theory.** 3-2-2. Preq., Music 103. Continuation of 103. Sp.
- 107: Hymnology.** 0-3-3. The development of Christian hymnody; an appreciation of its value and an appraisal of suitability for worship. Sp.
- 108: Introduction to Music Literature.** 0-2-1. A broad survey of the history of music and its literature at the freshman level. F.
- 109: Intermediate Music Literature** 0-2-1. The study of the history of music and its literature at the freshman level with increasing emphasis on analytical listening skills. W.
- 110: Advanced Music Literature.** 0-2-1. The culmination of the development of analytical listening skills relative to the history of music and its literature at the freshman level. Sp.
- 201: Theory.** 3-2-2. Preq., completion of Music 104. Continuation of first year course with emphasis on the organization and interaction of melodic, harmonic and rhythmic concepts and musical forms. Aural training and functional keyboard is intensified in proportion to the depth of course content. F.
- 202: Theory.** 3-2-2. Preq., Music 201. Continuation of 201.W
- 203: Theory.** 3-2-2. Preq., Music 202. Continuation of 202. Sp.
- 204: Conducting.** 1-1-1. Elementary methods, principles and practice of conducting. F.
- 207: Introduction to Church Music.** 0-3-3. History of development of sacred music. W.
- 215-216: Techniques of Musical Stage Production.** 3-1-2 each. Practical study of theories, practices and techniques of musical stage production. Su,Sp.
- 217: Opera Workshop.** 0-1-1 (6). A function study in opera performance including voca., dramatic, and technical aspects of opera production. F,W,Sp.
- 230: School Music.** 0-2-2. Fundamentals of music, study of rhythm and sight-singing for the elementary education major. Su,F,W,Sp.
- 234: School Music.** 0-2-2. Preq., Music 230. For juniors and seniors. Designed to give prospective classroom teacher materials and methods for teaching music in elementary grades. Review of fundamentals, study of rhythm and singing. Su,F,W,Sp.
- 303: Choral Arranging.** 0-2-2. Preq., completion of Music 203. A study of writing for the individual voices and the combinations of voices in choral ensembles. Sp.
- 304: Composition.** 0-3-3. Preq., completion of Music 203. A survey of some of the techniques of 20th century composition with projects consisting of the writing of short compositions illustrating these techniques. W.
- 305: Conducting.** 1-2-2. Preq., Music 201 and 204. Principles of interpretation, score reading with emphasis on choral conducting laboratory experience with the choral ensembles. W.
- 306: Conducting.** 1-2-2. Preq., Music 201 and 204. Emphasis on instrumental conducting experience. W.
- 307: American Church Music.** 0-3-3. A comprehensive study of hymnody from the colonial era to the 20th century.
- 310: Form and Analysis.** 0-3-3. Preq., completion of Music 203. A study of specific examples of the major forms of composition to show the relative importance of detail to the over-all comprehension of a composition. F.
- 314: Instrumental Arranging.** 0-2-2. Preq., completion of Music 203. A study of writing for the individual instruments of the band and orchestra, the combinations of instruments in the various sections, and the combination of all the sections. Sp.
- 317: History of Music.** 2-2-2. Preq., Music 102, 103, and 104 or permission of instructor. A survey of the specific periods of music and its literature, from antiquity through the renaissance. F.
- 318: History of Music.** 2-2-2. Preq., Music 102, 103, and 104 or permission of instructor. Continuation of Music 317, from the baroque and into the classical era. W.
- 319: History of Music.** 2-2-2. Preq., Music 102, 103, and 104 or permission of instructor. Continuation of Music 318, from the late romantic to the present time. Sp.
- 330: Music Appreciation.** 0-3-3. Designed to provide students not majoring in music with materials to develop a higher degree of understanding and enjoyment of music literature by many composers. Su,F,W,Sp.
- 401: Counterpoint.** 0-3-3. Preq., completion of Music 203. A study of contrapuntal practice of the 18th and 19th centuries with emphasis on the understanding of counterpoint within a harmonic context. W.
- 402: Problems in Theory for the Music Educator.** 0-2-2. A functional approach in music theory designed to assist the teacher in applying more theory to classroom teaching. Sp.
- 407: Organization and Administration of Church Music.** 0-3-3. The ministry of music with reference to materials, and organization. Field work with faculty supervision and evaluation is required. F.
- 408: Survey of Oratorio Solo Literature.** 1-1-1. Study, preparation, and performance of basic oratorio solos from the standpoint of vocalist and organist. F.
- 409: Survey of Organ Literature.** 3-0-1. A review of six centuries of organ literature for the organ major or musicologist. Su.
- 450: Special Problems.** 1-4 semester hours. Preq., consent of advisor. Credit depends on the nature of the problem. May be repeated for credit. Su,F,W,Sp.
- 455: Undergraduate Recital:** 0-1-0. Preq., Music Committee approval. As partial fulfillment for the Bachelor of Fine Arts Degree, all candidates must present a recital in their applied music major. Su,F,W,Sp.
- 464: Piano Methods, Materials, and Practice Teaching.** 0-2-2. Methods and materials used in teaching piano to beginners. Required by the State Department of Education for teachers wishing to be certified in piano. F.
- 465: Piano Methods, Materials, and Practice Teaching.** 0-2-2. Continuation of 464. Practice teaching of children is an integral part of this course.W.
- 466: Survey of Vocal Literature.** 0-3-3. A survey of vocal literature covering a wide diversity of composers, styles, and historical periods through discussion and analysis of representative works.

This course includes assignments in listening, performance and reading. Sp.

- 467: Survey of Piano Literature.** 0-3-3. A survey of piano literature from the classic period to the present. Literature composed for earlier keyboard instruments will also be included. Su, Sp.
- 468: A Survey of Choral Literature.** 0-2-2. A survey of choral literature covering a diversity of composers, styles, and historical periods through discussion and analysis of representative works. Sp, Su.
- 474: Seminar.** 0-1-1. Discussions and guided research based upon professional problems which confront the musician and the teacher. Su, F, W, Sp.
- 475: Seminar.** 0-1-1. Continuation of 474. Su, F, W, Sp.
- 476: Vocal Pedagogy, Materials and Practice Teaching.** 1-2-2 (4). Methods and materials used in teaching voice in private studio and/or in the school. F, W.
- 501: Canon and Fugue.** 0-3-3. Preq., Music 401. The Bach technique in double counterpoint. Exercises in canon and other fugal techniques leading in the analysis and writing of the complete fugue.
- 502: Composition.** 0-3-3. A study of selected mainstream Twentieth Century compositional techniques. Emphasis is placed on creative application in the writing of short original compositions.
- 503: Analysis of Style.** 0-3-3. A comparative analysis of historical styles focusing on representative works through the Classical Period. F, Su.
- 504: Analysis of Style.** 0-3-3. A comparative analysis of historical styles focusing on representative works of the Romantic Period through the Twentieth Century. W, Su.
- 517: Advanced History and Literature of Music.** 0-3-3. Intensive study designed to enlarge the teacher's understanding of music history and literature by means of lectures, discussions, research, and analysis. Sp.
- 518: Advanced History and Literature of Music.** 0-3-3. Continuation of 517. F.
- 519: Advanced History and Literature of Music.** 0-3-3. Continuation of Music 518. Music in the Romantic Period and Twentieth Century. W.
- 524: Conducting.** 0-3-3. Technique of the baton, score reading, principles of interpretation, and problems which face the conductor. The work will be adapted to the individual's needs with respect to vocal or instrumental emphasis.
- 540: Bibliography and Research Sources in Music.** 0-2-2. Music source materials for research or reference.
- 550: Special Problems.** 1-4 semester hours. Preq., consent of advisor. Advanced course dealing with special problems in the different fields of elementary and secondary music. May be repeated for a maximum of six hours credit.
- 555: Graduate Recital.** 3 semester hours. Preq., music committee approval. A public solo recital performance of scope and technique representative of the graduate level.
- 560: Selected Topics.** 1-4 S.H. Preq., consent of advisor. Advanced course dealing with selected topics in the different fields of elementary and secondary music. May be repeated for credit for a maximum of six hours.
- 561: Piano Pedagogy.** 0-2-2. A study of historical schools of piano technique and pedagogy. F, Su.
- 562: Piano Pedagogy.** 0-2-2. Organization and application of piano teaching on the college level, includes observation and practice teaching. W, Su.
- 563: Piano Music of the Twentieth Century.** 0-3-3. A study of specific contributions to piano literature by specific composers such as Schoenberg, Weber, Stravinsky, Bartok, Stockhausen, Boulez, Berio, and others. Sp, Su.
- 564: Piano Literature.** 0-3-3. A survey of piano concerto literature covering a wide diversity of composers, styles, and historical periods through discussion and analysis of representative works. This course includes assignments in listening, performance, and reading.

565: Organ Literature. 0-3-3. History and literature covering materials from the Baroque era through the Twentieth Century. Selected music analyzed from an historical and a stylistic/performance problem perspective.

567: Instrumental Literature. 0-3-3. A survey of original literature for the concert band covering a diversity of composers and ranges of performance difficulty through assignments in listening and score study.

568: Instrumental Pedagogy. 0-2-2. A study of teaching methods, techniques, and materials used in teaching instrumental music in private studio and/or in school. Sp, Su.

MUSIC (APPLIED)

Music performance courses are divided into nine principal divisions: Piano, Organ, Strings (Violin, Viola, Violoncello and Double Bass), and Guitar, Woodwinds, Percussion, Voice, Brass, Harpsichord.

The first digit of an applied music course number signifies the year 1, 2, 3, or 4.

The second digit denotes one of nine principal divisions as follows: 1-Piano; 2-Organ; 3-Voice; 5-Strings; 6-Woodwinds; 7-Brass; 8-Percussion, and 9-Harpsichord.

The final digit indicates the number of hours credit. Each course number may be repeated for credit as necessary in order to complete requirements for freshman, sophomore, junior, and senior level.

A student may register for 1 or 2 hours credit per quarter for each applied music course. A maximum of 6 hours credit may be accumulated in each level. Then a student must register for the next higher level or discontinue the applied music study of that instrument for credit.

The student must have the approval of the applied music instructor before registering for these courses.

Piano

100 courses: Instruction in basic styles and techniques of piano playing. Performance of representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the students playing improves.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

ORGAN

100 courses: Basic manual and pedal techniques from the leading organ methods. A wide acquaintance with organ literature and preparation for church service playing.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

VOICE

100 courses: Application of the principles of voice production and song interpretation through the study of vocalises and the standard vocal literature. Prescribed repertoire to include English, Italian, French, and German songs and arias in advanced studies.

200 courses: Continuation of 100 courses.

300 courses: Continuation of 200 courses.

400 courses: Continuation of 300 courses.

STRINGS

(Violin, Viola, Violoncello, Double Bass)

100 courses: Instruction in the basic techniques of major instrument. Selected scale studies and etudes. Development of repertoire including the standard works of the literature.

- 200 courses:** Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

WOODWIND

100 courses: Instruction in the basic techniques of the major instrument. Performance of representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the student. Assignments become more advanced as the students playing improves.

- 200 courses:** Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

BRASS

100 courses: Instruction in the basic techniques of the major instrument. Performance of the representative works suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the students playing improves.

- 200 courses:** Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

PERCUSSION

100 courses: Instruction in the basic techniques of the major instrument. Performance of the representative works suited to the individual student and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the students playing improves.

- 200 courses:** Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

HARPSICHORD

100 courses: Instruction in basic styles and techniques of harpsichord playing. Performance of representative solo works and continuo parts suited to the individual students and their needs. The extent and difficulty of the repertoire covered will depend on the capacity of the individual student. Assignments become more advanced as the student's playing improves.

- 200 courses:** Continuation of 100 courses.
300 courses: Continuation of 200 courses.
400 courses: Continuation of 300 courses.

MUSIC (ENSEMBLE)

144: Choir, 1 credit hour optional.

166: Orchestra, 1 credit hour optional.

177: Band, 1 credit hour optional.

Each course number may be repeated as many times as necessary. Music majors should familiarize themselves with maximum allowable credits and with requirements for Ensemble participation.

NURSING

109: Introduction to Nursing. 0-3-3. An introduction to the field of nursing with emphasis on its historical development, the cultural and socio-economic influences affecting its evolution, nursing process and basic human needs. F, Sp.

110: Fundamental Skills Lab. 8-0-2. Coreq., Nursing 109. Affords students opportunities to develop nursing skills through practice and direct patient care. Emphasis on nursing activities which aid individuals in meeting basic human needs. F, Sp.

112: Introduction to Adult Health Maintenance. 8-3-5. Preq., Nursing 109 and 110 and credit or registration in Zoology 225 and 226. Designed to acquaint students with fundamental nursing principles and techniques to administer safe nursing care in meeting basic human needs. Principles applied in clinical setting. W, Su.

114: Nursing Assessment and Intervention in Adult Health Maintenance. 8-3-5. Preq., Nursing 112 and credit or registration in Bacteriology 212, 213. Study, identification and application of basic nursing knowledge and skills related to adult health needs. Emphasis on patient-centered care utilizing the nursing process. F, Sp.

116: Nursing Assessment and Intervention in Health Maintenance. 8-3-5. Preq., Nursing 114 and Psychology 102. Continuation of Nursing 114 with emphasis on organic and functional health needs of clients from birth to senescence including pathological neuro-psychiatric conditions. W, Su.

210: Nursing Assessment and Intervention in Maternal Health Maintenance. 8-3-5. Preq., Nursing 116. A study and application of principles and concepts of family-centered maternity care. Emphasis on nursing care of clients during antepartal, intrapartal, postpartal and newborn periods. F, Sp.

212: Nursing Assessment and Intervention in Child Health Maintenance. 8-3-5. Preq., Nursing 116 and Psychology 408. Study, identification and application of nursing knowledge and skills related to children's health needs. Emphasis on growth and development, the family and prevention of illness utilizing the nursing process. F, W.

214: Nursing Seminar. 0-1-1. Preq., Credit in all other nursing courses. Study of current nursing trends Emphasis on professional opportunities and obligations and legal aspects of nursing practice. W, Sp.

216: Nursing Practicum. 24-4-7. Coreq., Nursing 214. Preq., Credit in all other nursing courses. Application of principles and techniques acquired in previous nursing courses in caring for clients with complex and/or multiple threats to basic needs and to gain more skill in working as a team member and in directing auxiliary personnel. W, Sp.

246: Computers in Nursing Practice. 0-1-1. This course presents an overview of computer utilization in nursing service, including staffing, education, research, patient classification, care plans, physician orders and procurement. Su.

OFFICE ADMINISTRATION

101: Keyboarding and Document Formatting. 0-2-2. Beginning course emphasizing keyboarding. Instruction in keyboarding skills and techniques. Formatting documents such as letters, memoranda, tables, and manuscript reports. Su, F, W, Sp.

102: Typewritten Communication. 2 1/1-1-2. Preq., Office Administration 101 or equivalent; Emphasis on formatting and production of typewritten communications including business forms, internal and external correspondence, and complicated reports. (Meets intermediate typewriting requirements for Business Education majors.) F, W, Sp.

103: Advanced Typewritten Communications. 2 1/2-1-2. Preq., Office Administration 102; Emphasis on higher productivity in formatting letters, memoranda, manuscripts, reports, and legal documents. Development of awareness of continuity and interrelationship of various office activities. F, W, Sp.

210: Information Processing Concepts, Systems, and Procedures. 0-3-3. Word processing, telecommunications, electronic mail, facsimile, data processing, electronic filing and retrieval, machine transcription, and automated text-editing. W.

211: Information Processing Applications. 0-3-3. Preq., Office Administration 210: at least a grade of C in Office Administration 210. Simulated office experience situations utilizing machine transcription and text-editing skills. Sp.

212: Information-Word Processing Specialized Applications. 0-3-3. Preq., Office Administration 211: at least a grade of

C in Office Administration 210 and 211. Concentration on proficiency in vocabulary and problems peculiar to the student's area of specialization; i.e., medical, legal, and other technical areas. Continued text-editing applications.

- 214: Principles of Shorthand.** 0-3-3. Theory of Speedwriting Shorthand system. Principles stressed through reading and writing business communication in shorthand. F.
- 215: Dictation and Transcription.** 0-3-3. Preq., Office Administration 214. Development of ability in reading, writing, and transcribing shorthand. Building recording speed from time dictation. W.
- 216: Advanced Transcription.** 0-3-3. Preq., Office Adm. 215. Continued development of speed and fidelity in recorded dictation. Transcription skill developed with emphasis on production of mailable copy. Sp.
- 250: Office Management.** 0-3-3. The role of office management in business institutions; organization of office systems; control of office costs; leadership and motivation of office personnel; business information systems. Su, F, Sp.
- 307: Office Systems and Procedures.** 0-3-3. Information processing; communications transmittal systems; reprographics and photosetting; machines, records management/control.
- 480: Administrative Office Management.** 0-3-3. Administrative organizational principles; techniques of organizational analysis; analysis and design of information systems; information technology; communications and records management; physical facilities; performance standards and control. Su, F, Sp.
- 482: Special Problems in Office Administration.** 0- (1-3) - (1-3). (Maximum of nine semester hours credit.) Selected topics dealing with advanced problems in office administration/ administrative services and support. The problems and projects will be timely and current. Su.
- 484: Office Information Systems.** 0-3-3. A study of integrated office systems design problems and approaches; analysis of information requirements; feasibility studies; transition from pilot to operational system; cost benefiting. W.

PETROLEUM ENGINEERING

- 100: Introduction to Petroleum Engineering.** 3-0-1. A survey of topics to introduce the student to the profession, to the department, and to the curriculum. F.
- 200: Story of Petroleum.** 0-3-3. Science Elective for non-Engineering students. Petroleum industry pictured from land leasing to product marketing. Importance of petroleum in economic, social, and political development reviewed. Su, F, W, Sp.
- 202: Exploration and Drilling.** 0-3-3. Preq., Math 111. Principles and methods of oil field exploration and drilling.
- 305: Laboratory.** 6-2-4. Preq., Petroleum Engr 202. Preparation, testing, and alteration of drilling muds and oil well cement; analysis of well formation samples. F.
- 311: Petroleum Reservoir Fluids.** 3-2-3. Preq., Petroleum Engineering 202, Chemistry 102, 104. Pressure-volume-temperature behavior of oil field hydrocarbon systems. Gas, gas-condensate and under saturated reservoirs. W.
- 404: Drilling and Production Design.** 0-3-3. Preq., Petroleum Engineering 202. Oil field development and operation, selection of drilling and pumping equipment, casing design and cementing problems. Sp.
- 405: Well-Logging Methods.** 3-2-3. Preq., credit or registration in Petroleum Engineering 410. Theory, operation and application of modern oil well logging methods, including radioactive and sonic logging. F.
- 406: Evaluation of Oil and Gas Properties.** 0-2-2. Preq., Petroleum Engineering 405. Factors, principles and processes used in the evaluation of oil and/or gas properties; preparation of valuation reports. Sp.
- 410: Petroleum Reservoir Engineering.** 0-3-3. Preq., Mathematics 230, Petroleum Engineering 311 or consent of instructor. Petroleum reservoir engineering applied to single and multi-drive reservoirs, including a study of steady-state and unsteady state

aquifer performance, fluid flow in reservoirs, and the displacement of oil and gas.

- 414: Natural Gas Engineering.** 0-2-2. Preq., Petroleum Engineering 311. Production, measurement, compression and transmission of natural gas; well potential and deliverability. Su, W.
- 415: Natural Gas Engineering Laboratory.** 3-0-1. Preq., credit or registration in Petroleum Engineering 414. Specific gravity and calorific content of gases; testing and calibration of orifices, positive displacement meters, safety valves and regulators. Su, W.
- 424: Seminar.** 0-1-1. Preq., Senior standing. Conference type technical discussion; reading assignments; professional presentations; and Conservation Department Hearings attendance.
- 425: Enhanced Oil Recovery.** 0-3-3. Preq., Petroleum Engineering 410 or consent of instructor. Study of recent developments in production practices, methods and equipment associated with thermal, miscible and immiscible techniques of enhanced oil recovery.
- 450: Computer Applications.** 3-2-3. Preq., consent of instructor. Advanced problems in petroleum engineering assigned according to ability and requirements of the student, with the intent that a computer solution will be forthcoming.
- 451: Micro-Computing for Petroleum Professionals.** 3-0-1. Micro-computers and their applications in the petroleum industry. Su.
- 452: Micro-Computer Reservoir Engineering.** 3-0-1. Preq., Petroleum Engineering 410, Engineering 102 or consent of instructor. The micro-computer is used to solve traditional reservoir engineering problems. Su.
- 453: Micro-Computer Pipeline Engineering.** 3-0-1. Preq., Petroleum Engineering 414, Engineering 102 or consent of instructor. The micro-computer is used to solve gas and liquid pipeline design problems. Su.
- 454: Micro-Computer Drilling Engineering.** 3-0-1. Preq., Petroleum Engineering 404, Engineering 102 or consent of instructor. The microcomputer is used to solve drilling design operation and problems. Su.
- 475: Applied Petroleum Engineering.** 0-3-3- (9). Preq., consent of instructor. Application of logging, reservoir, and economic engineering techniques to field cases. Su.
- 503: Advanced Reservoir Engineering.** 0-2-2. Preq., consent of instructor. Application of differential equations to the flow of fluids through porous media; well-spacing, secondary recovery, gas drive reservoirs, and water drive reservoirs.
- 504: Advanced Reservoir Engineering (continued).** 0-2-2. Preq., consent of instructor.
- 525: Advanced Natural Gas Engineering.** 0-2-2. Preq., consent of instructor. The engineering applications of science and mathematics to the processing of natural gas and natural gasoline; plant and/or fluid optimization.
- 550: Special Problems.** 1-4 semester hours. Preq., consent of instructor. Advanced problems in petroleum engineering will be assigned according to the ability and requirements of the student.

PETROLEUM TECHNOLOGY

- 101: Petroleum Exploration and Drilling Technology.** 0-3-3. Principles and methods of oil field exploration and drilling with emphasis on drilling fluids, power plants and hoisting operations from a field operating standpoint. F.
- 102: Oil Field Testing and Production Technology.** 3-2-3. Oil field development and operation, single and multi-phase fluid flow; production decline curves; electrical, radioactive, and sonic logging; well testing and deliverability. W.
- 103: Production Measurement and Transmission.** 3-2-3. Production, measurement, compression and transmission of natural gas; testing and calibration of orifices; positive displacement meters, safety valves and regulators. Sp.

- 104: Petroleum Field Practice.** 3-2-3. An application of petroleum technology in the laboratory with lectures to include field practices of cementing, acidizing and fracturing. Su.

PHILOSOPHY

- 201: Introduction to Philosophy.** 0-3-3. Preq., junior standing or permission of the instructor. Philosophical vocabulary; types and problems of philosophy; major philosophical positions. Su,F,W,Sp.
- 251-252: Logic and Scientific Method.** 0-3-3 each. Traditional formal logic: inductive logic and scientific method; symbolic logic. F,Sp.
- 305: Ethics.** 0-3-3. Preq., Philosophy 201 or permission of the instructor. A study of the writings of the major moral philosophers, beginning with the Greeks and continuing to the present. Sp.
- 310: Philosophy of Religion.** 0-3-3. Preq., Philosophy 201 or permission of the instructor. A comparative study of the philosophical aspects of the major world religions: their doctrines of God, the cosmos, and man. W.
- 350: History of Philosophy.** 0-3-3. Preq., Philosophy 201 or permission of the instructor. A survey of philosophical speculation in the West, from its beginnings in the Mediterranean world to the present. W.
- 401: The American Mind.** 0-3-3. (Same as English 401). Important currents of ideas that have found expression in American literature. F,Sp.

PHYSICS

- 101: Introductory Modern Physics.** 4 1/2-2-3. Quantum theory with associated laboratory experiments, relativity with Brehme diagrammatic method, introductory calculus with emphasis on physical interpretations, Fortran computer programming.
- 201: General Physics.** 0-3-3. Preq., Mathematics 230. Coreq., Physics 261. Thorough treatment of fundamental principles and detailed analysis of important physical situations. Su,F,W,Sp.
- 202: General Physics.** 0-3-3. Preq., Physics 201 and Mathematics 231. Coreq., Physics 262. A continuation of Physics 201. Su,F,W,Sp.
- 205: Descriptive Physics.** 0-3-3. For non-science majors interested only in the cultural aspects of the subject. Su,F,W,Sp.
- 206: Descriptive Physics.** 0-3-3. A continuation of Physics 205. Su,F,W,Sp.
- 207: Astronomy.** 0-3-3. The earth, moon, sun, planets, coordinate systems, motion in solar system, the seasons, the galactic system. May be accompanied by Physics 208. F,W,Sp.
- 208: Observational Astronomy.** 3-0-1. To accompany Physics 207. Optional. Identification of principal constellations, bright stars and planets. Telescopic observation of nebulae, double stars, moon and planets. F,W,Sp.
- 209: Elementary Physics.** 0-3-3. Preq., Mathematics 111-112. For pre-medical, pre-dental, pre-pharmacy, and science education students. A study of the fundamental principles of physics and their applications. Su,F,W,Sp.
- 210: Elementary Physics.** 0-3-3. Preq., Physics 209. A continuation of Physics 209. Su,F,W,Sp.
- 221: Introduction to Astrophysics.** 0-3-3. Introduction to astronomy, with emphasis on physical principles. Application of mechanics to orbits of planets and multiple stars. Atomic theory applied to stellar spectra. Nuclear reactions in stars.
- 261: General Physics Laboratory.** 4 1/2-0-1. Preq., Mathematics 111 and 112. Laboratory investigations of basic physical principles. Su,F,W,Sp.
- 262: General Physics Laboratory.** 4 1/2-0-1. Preq., Physics 261. A continuation of Physics 261. Su,F,W,Sp.
- 303: Geometrical Optics.** 0-3-3. Preq., Physics 202. The study of thick lenses, lens system layouts, aberrations, photometric theory applied to optical systems, optical instruments and matrix optics.
- 304: Physical Optics.** 0-3-3. Preq., Physics 202. A thorough exposition of the wave theory of light and an introduction to the quantum theory. F.
- 307: Thermodynamics.** 0-3-3. Preq., Physics 202. Classical thermodynamics and introductory classical and quantum statistical mechanics. F.
- 320: Optics Laboratory I.** 4 1/2-0-1. Experiments in optics to demonstrate optical phenomena.
- 350: Introduction to Lasers.** 0-3-3. Preq., six hours of physics. Introduction to modern laser technology. A semi-quantitative approach presents all known types of lasers. Applications such as measurements, instrumentation, communications, biological, medical, and health hazards are concluding topics.
- 360: Physics For Teachers.** 0-4-4. The central ideas, principles and relationships of physical theory as pertains to the everyday environment.
- 361: Physics For Teachers.** 0-4-4. A continuation of Physics 360.
- 380: Physics of Solid State Materials.** 0-2-2. Study of the electrical, thermal, and magnetic properties of solid state materials.
- 390: Physics of the Solid State.** 0-2-2. Preq., Math 350 and Physics 202. Study of the mechanical, thermal and magnetic properties of solid state materials. Sp.
- 404: Electricity and Magnetism.** 4 1/2-3-4. Preq., Physics 202. A study of the fundamental theories of electricity and magnetism. An application of basic principles is stressed.
- 405: Electricity and Magnetism.** 4 1/2-3-4. Preq., Physics 404. A continuation of Physics 404.
- 410: Modern Physics.** 4 1/2-3-4. Preq., Physics 202. An advanced course in general physics stressing the modern developments of the subject. W.
- 411: Modern Physics.** 4 1/2-3-4. Preq., Physics 410. A continuation of Physics 410. Sp.
- 415: Introduction to Lasers.** 0-3-3. Preq., Physics 304, 411. Introduction to modern laser technology. Topics included are spectra of simple systems, lifetimes and energy levels, atomic, molecular and solid state lasers, and laser applications.
- 420: Optics Laboratory II.** 4 1/2-0-1. Experiments in optics to demonstrate advanced optical phenomena.
- 422: Physical Mechanics.** 0-3-3. Preq., Physics 202. Statics, particle dynamics, dynamics of a rigid body, kinetic theory, elasticity, wave motion, and behavior of fluids. Fundamental importance of mechanical principles in all fields of physics emphasized. W.
- 423: Physical Mechanics.** 0-3-3. Preq., Physics 422. A continuation of Physics 422. Sp.
- 424: Quantum Mechanics.** 0-3-3. Preq., Physics 423 or equivalent, Physics 410, and Mathematics 350. An extension of mechanics into the microscopic world. The statistical nature of physical law is developed to augment the classical Newtonian picture of the macroscopic world. Will be offered Spring Quarter, Alternate years, beginning Spring 1981-82.
- 450: Modern Optics.** 0-3-3. Preq., Physics 350. Selected topics in modern optics.
- 460: Physics of Photography.** 0-3-3. Preq., Physics 205. A descriptive and non-mathematical treatment of the physics and chemistry applicable to photography is presented for photography majors and other non-technical students interested in photography.
- 462: Modern Physics for Teachers.** 0-4-4. Preq., 8 hours of physics. A survey of modern physics as used by the high school teacher of physics.
- 463: Modern Physics for Teachers.** 0-4-4. Preq., 8 hours of Physics. Dissemination of information on physical science curricula for secondary schools.
- 465: Physics of Sound.** 0-3-3. Preq., Physics 205. The physical and psychophysical processes associated with sound are studied so that the basic mechanisms of hearing, speech and music can be better understood.
- 466: Physics of Hi-Fidelity.** 0-3-3. Preq., Physics 205. A descriptive study of the technical aspects of stereo and quadraphonic

sound reproduction systems. Designed to provide non-science majors with an indepth understanding of how hi-fidelity sound is produced by studying and applying selected topics in Classical and Modern Physics.

- 470: Seminar.** 1-6 hours credit. Preq., Permission of instructor. An opportunity is given for students to present current topics and actively participate in discussions concerning new developments in physics.
- 480: Modern Astrophysics.** 0-3-3. Preq., Physics 411. Astrophysics is discussed in light of the tremendous amount of data accumulated from areas such as high energy experimental physics and elementary particle theory.
- 511: Electromagnetic Theory.** 0-3-3. An advanced treatment of the theory of electricity and magnetism.
- 512: Solid State Physics.** 4 1/2-3-4. An advanced treatment of the structure and the thermal, electrical and magnetic properties of solid materials.
- 521: Theoretical Mechanics.** 0-3-3. A presentation of advanced classical mechanics oriented towards modern theories of physics.
- 522: Quantum Mechanics.** 0-3-3. Preq., Mathematics 502. An outline of the principles of wave mechanics and quantum mechanics, followed by their application to problems in atomic and nuclear theory.
- 531: Theories of Physics.** 0-3-3. Selected topics. Contemporary theories dealing with recent trends in physics.
- 532: Theories of Physics.** 0-3-3. A continuation of Physics 531.

POLITICAL SCIENCE

- 201: National Government in the United States.** 0-3-3. A study of the development of the national government with emphasis on problems connected with the federal system and separation of powers. Su,F,W,Sp.
- All of the 300 and 400 numbered courses listed below carry the prerequisite of Political Science 201.**
- 302: Comparative Foreign Governments.** 0-3-3. Preq., Political Science 201 or consent of instructor. A study of the political systems and governments of the major European nation-states of the twentieth century. W.
- 303: State Government and Administration in the United States.** 0-3-3. A study of the role of the state in the American Union including nation-state and interstate relations. Sp.
- 304: The Government of Louisiana.** 0-3-3. A study of the functions and structure of the state government of Louisiana including constitutional development. F.
- 310: Government and the Economy.** 0-3-3. Political/ economic issues (employment, inflation, poverty, energy, environment, health care, etc.) are studied according to competing theories of political economy. W.
- 312: Public Administration.** 0-3-3. A study of the legal responsibility, organizational structure, personnel policies, and fiscal management of different levels of government in the United States. F.
- 314: American Municipal Government and Administration.** 0-3-3. A study of the authority, legal limitations and functions of present-day American municipalities; specific current legislative, judicial and administrative problems will be analyzed. W, even.
- 318: American Political Parties.** 0-3-3. A study of political parties as an essential factor in democratic government. Sp,odd.
- 320: Legislation in the United States: Federal and State.** 0-3-3. A study of the legislative process and of the influences that determine the nature of the legislative product. Sp, even.
- 325: History of European Political Theory.** 0-3-3. Preq., one previous course in political science or philosophy and junior class standing, or consent of instructor. A study of Western political philosophy from its beginnings to the nineteenth century. F, odd.
- 326: American Political Theory.** 0-3-3. Preq., one previous course in political science and junior class standing, or consent

of instructor. A study of American political thinking with emphasis on the issues of democracy and the distribution of power in the United States. F, even.

- 327: Modern Political Theory and Ideologies.** 0-3-3. A study of nineteenth and twentieth century political theory with emphasis on the principal modern ideologies (Anarchism, Communism, Socialism, Fascism, Democracy). W.
- 330: The American Presidency.** 0-3-3. A study of the American Presidency including its origins, roles, functions, and problems. F.
- 345: Scope and Methods in Social Sciences.** 0-3-3. An introduction to basic statistics, research design, and the application of the qualitative and quantitative methods to the social sciences. F.
- 350: International Relations.** 0-3-3. Preq., one previous course in political science or consent of instructor. An introductory study of political contacts between modern nation-states, the origin of nationalism and imperialism, and the causes and effects of power politics. W, odd.
- 402: Comparative Communist Systems.** 0-3-3. A comparative study of the governments and ideological diversities of countries of the communist bloc; particular attention will be paid to domestic affairs. Sp, even.
- 403: Communist Foreign Policies.** 0-3-3. A study of the world communist movement in terms of the foreign policies of individual countries. Sp, odd.
- 412: Advanced Public Administration.** 0-3-3. The structures and processes of public administration; role of administration in government, trends in American public administration, techniques of management in selected spheres.
- 420: Contemporary Problems in Government.** 0-3-3. Preq., One of the following courses: Political Science 201, or 303, or 304, and junior standing. Problems will be selected in conference with the instructor.
- 426: American Constitutional Law.** 0-3-3. Introduction to judicial institutions and processes as well as a case method study of the constitutional issues of judicial review, federalism, government economic regulation, and others. W.
- 427: American Constitutional Law.** 0-3-3. A continuation of the case method study of constitutional law, with emphasis on political and civil rights (speech, press, assembly, religion, race, criminal procedure, etc.). Sp.
- 450: International Organizations.** 0-3-3. For advanced undergraduates and graduate students. The theory of international organizations, the League of Nations, the United Nations, functions of specialized agencies, and the role of existing regional security agreements.

PORTUGUESE

- 101-102: Elementary Portuguese.** 0-3-3 each. Conversation, reading and grammar. F,W, even.

PROFESSIONAL AVIATION

- 103: Introduction to Aviation.** 0-4-4. An introduction to the airplane, weather, navigation, radio procedures and rules of the air. Prepares the student for the FAA Private Pilot Written Examination. Su, F, W, Sp.
- 113: Introduction to Flight.** 3-0-1 (2). Preq., Professional Aviation 103 or concurrent enrollment. Provides the student with approximately 20 hours of dual and solo flight instruction. Designed to meet the flight experience requirements for the FAA Private Pilot flight check. Special fee.
- 200: Aircraft Powerplant Systems.** 0-3-3. Preq., Professional Aviation 103. Theory of piston engines. A study of the internal combustion process in the radial, opposed and V-typed engines including engine driven accessories. W, Sp.
- 205: Aircraft Electrical Systems.** 0-3-3. Preq., Professional Aviation 103. Fundamentals of aircraft electrical systems. F.

- 206: Intermediate Aviation.** 0-3-3. Preq., Professional Aviation 103. Commercial Pilot Ground School. Aircraft performance, engine and systems, the checklist, servicing, operational data. F,W.
- 207: Intermediate Aviation II.** 0-3-3. Preq., Professional Aviation 206. Commercial Pilot Ground School. Emergency procedures, safety navigation, night flight, flight publications, FSS and weather. W,Sp.
- 213: Intermediate Flight.** 6-0-2 (6). Preq., Professional Aviation 113. Provides the student with approximately 40 hours flight instruction. Designed to meet the flight experience requirements for the FAA Commercial Pilot Certificate. Special Fee. Su, F, W, Sp.
- 220: Introduction to Aerospace Science.** 0-3-3. Study of the science of aviation and space flight including powerplants, vehicles, navigation systems and the human body. F,Sp.
- 223: Fixed Base Operations.** 0-3-3. Preq., Professional Aviation 103. Detailed study of the functions and responsibilities of the typical Fixed Base Operator. F.
- 303: Aerodynamics.** 0-3-3. Preq., Professional Aviation 207. A study of advanced aircraft design, aerodynamics and performance. F, Sp.
- 304: Advanced Aircraft Systems.** 0-3-3. Preq., Professional Aviation 200 and 205. Introduction to large transport systems and sub-systems. Sp.
- 305: Jet Propulsion Systems.** 0-3-3. Preq., Professional Aviation 103. Theory of jet propulsion and measurement of thrust. Includes turbojet, turbofan, and turboprop engines. F
- 306: Advanced Aviation I.** 0-3-3. Preq., Professional Aviation 207. Instrument Ground School. Study of instrument flight including physiology, aerodynamics, instruments, attitude flying, regulations and communications. F,W.
- 307: Advanced Aviation II.** 0-3-3. Preq., Professional Aviation 306. Instrument Ground School. A study of instrument flight planning, air traffic control procedures, operational instrument flight and a review of aviation weather. W,Sp.
- 313: Advanced Flight.** 3-0-1 (2). Preq., Professional Aviation 213. Provides the student with approximately 20 hours of dual instrument flight instruction necessary to meet the experience requirements for the FAA Instrument Rating Flight Check. Special fee. Su, F, W, Sp.
- 322: Aviation Law.** 0-2-2. Study of legislation covering aviation, air safety, and economic regulations governing the aviation industry. F, W.
- 400: Theory of Multiengine Flight.** 0-2-2. Preq., Professional Aviation 307. Provides the students with the theory of multiengine instrument flight. Focuses on emergency procedures and performance factors and weather related flight. Su, W.
- 405: Applied Aviation Theory.** 3-2-3. Preq., Professional Aviation 414. Provides the student with fundamentals necessary to analyze and instruct instrument reference flight maneuvers and procedures. Prepares student for FAA Instrument Flight Instructor written examination. F, Sp.
- 407: Professional Aviation Theory.** 0-3-3. Preq., Permission of department head. Provides the student with the problem solutions and application of theory of flying transport aircraft. Prepares student for FAA Airline Transport Pilot written examination. W.
- 408: Flight Engineer Theory I.** 0-3-3. Preq., Professional Aviation 303, 304, 305. A study of FAA Regulations pertaining to air carrier operations and high altitude weather. F.
- 409: Flight Engineer Theory II.** 0-3-3. Preq., Professional Aviation 408. A study of heavy aircraft weight and balance, performance and the air carrier airplane in general.
- 412: Flight Engineer Theory III.** 0-3-3. Preq., Professional Aviation 408, 409. A study of heavy aircraft in automatic flight, the flight controls, instruments, and anti-icing systems. Serves as a review of the FAA written examination. Sp.
- 413: Applied Flight.** 6-0-2 (8) Preq., Professional Aviation 400 and 414 or concurrent enrollment. Provides the student with flight instruction necessary to meet the experience requirements

necessary for FAA instructor of Airline Transport certificates and ratings. Special fee.

- 414: Applied Aviation Theory.** 3-3-4. Preq., Professional Aviation 307. Includes fundamentals of flight instruction and analyzes visual reference flight maneuvers. F,W,Sp,Su.
- 419: Directed Flight Instruction Experience.** 3-0-1, (4) Preq., Permission of Chief Flight Instructor and 2.0 GPA. Directed observation, participation and critique related to actual flight instruction. Su, F, W, Sp.
- 440: Aerospace Science.** 0-3-3. Preq., Professional Aviation 220. An advanced study of air and space travel, advanced engine and vehicle design, fuels, economic considerations, public benefits and spinoff applications. W,Su.
- 490: The Government Role in Aviation.** 0-3-3. Preq., Senior standing. Historic, current and future governmental control. A study of congressional action, the CAB, the FAA, ICAO, and state and local aviation laws.
- 491: Flight Safety.** 0-3-3. Preq., Senior standing. A study of aircraft accident investigative procedures. The NTSB. Statistical analysis of accident by cause factors. Accident prevention.

PSYCHOLOGY

- 102: General Psychology.** 0-3-3. A survey of fundamental processes and concepts of human behavior.
- 202: Advanced General Psychology.** 0-3-3. Preq., Psychology 102. An intensive survey of literature and procedures in general psychology. W.
- 204: Educational Psychology.** 0-3-3. Education Majors only. A survey course designed to meet the needs of prospective teachers by bringing an application of psychological principles to the instructional setting. Su,F,W,Sp.
- 205: Child Psychology.** 0-3-3. Preq., for Education Majors or Home Economics Education majors. A study of the physical and mental growth of the child, the social, emotional, motor development, interests, and imaginative activities. Su,F,W,Sp.
- 206: Adolescent Psychology.** 0-3-3. Preq., for Education Majors or Home Economics Majors. A study of the physical and mental growth of youth during the period of adolescence and the transition from childhood to adulthood. Su,F,W,Sp.
- 300: Elementary Statistical Methods in the Social Sciences.** 0-3-3. A course designed to provide an orientation to statistical concepts used in the behavioral science field. Sp.
- 301: Fields of Psychology.** 0-3-3. A study of the history of major fields and trends in psychology. Sp.
- 302: Physiological Psychology.** 0-3-3. Preq., Zoology 225 310 (or concurrent enrollment), Psychology 202. An intensive study of the physiology of the nervous system, and its relation to behavior. F.
- 303: Parapsychology.** 0-3-3. Preq., Psychology 102 and 202. Critical examination of theoretical and methodological issues in the study of nonconventional sensory, perceptual, and cognitive processes. Sp.
- 304: Social Psychology.** 0-3-3. Preq., Psychology 202. A study of the nature of social behavior, social stimulation and response; a psychological analysis of society and social institutions. W.
- 307: Elementary Experimental Psychology.** 3-2-3. Preq., Psychology 300 and 321. A beginning course in applying the scientific method to the problems of psychology. W.
- 310: Psychology of Personality.** 0-3-3. Preq., Psychology 202. A study of major theories of personality. Sp.
- 312: Psychology of Learning.** 0-3-3. Preq., Psychology 202. A survey of current theories of learning. Sp.
- 321: Psychological Testing.** 0-3-3. Preq., Psychology 300. An introduction to the principles and practices of psychological testing and evaluation. F.
- 400: Behavior Modification.** 0-3-3. Applied analysis to individual behaviors using concepts, and principles from experimental analysis of behavior. Sp.

- 404: Seminar in Psychology.** 0-3-3. (9). An intensive survey in selected current topics in the field of psychology.
- 407: Advanced Experimental Psychology.** 3-2-3. Preq., Psychology 307. Emphasis on investigating specific learning, motivation, and perception topics from methodological and historical viewpoints. W.
- 408: Human Growth and Development.** 0-3-3. A seminar for the study of human growth. W.
- 414: Dynamics of Adjustment.** 0-3-3. A comprehensive study of the problems of self-adjustment and self-management and the development of a well integrated personality. F,Sp.
- 418: Abnormal Psychology.** 0-3-3. Preq., Psychology 310 and 312. A study of the nature and development of abnormal behavior from a psychological viewpoint. F.
- 450: Introduction to Clinical Psychology.** 0-3-3. Preq., Consent of instructor. Introduction to clinical psychology as a science and profession. Lectures, discussions, demonstrations, and field observations are provided for an overview of clinical psychology. W.
- 455: Environmental Psychology.** 0-3-3. Preq., Psychology 102. A survey of concepts about individual's interaction with the physical environment. Emphasis is placed upon designing physical surroundings to serve social and personal needs. W.
- 459: Research Methods in Psychology.** 0-3-3. Preq., Psychology 300. An examination of the practical problems of designing, conducting, and interpreting research and of the structure and organization of research writing. F.
- 460: Field Research in Psychology.** 1 to 3 hours credit by arrangement. Preq., Psychology 459. Consent of the instructor. Supervised practice in methods of field research as a basic tool of psychology. Each student develops and executes a field research project. May be repeated for a maximum of 9 hours credit.
- 461: Data Analysis and Interpretation.** 1-3 hours credit. (3). Preq., Psychology 300 or equivalent. A course designed to provide the skills necessary to use currently existing computer software to analyze data encountered in the social sciences. (Offered for one hour credit, Summer only). Su.
- 465: Industrial Psychology.** 0-3-3. The application of psychological findings and concepts to the industrial environment. Sp.
- 469: Psychology of Sexual Behavior.** 0-3-3. Preq., Psy. 102, Zoology 200 and junior standing. Survey of both normal and abnormal sexual behavior and selected techniques employed in sex therapy and counseling.
- 475: Death, Dying and Grievance Process.** 0-3-3. Exploration of one's personal values toward death and the grieving process, funeral customs and practices, counseling the terminally ill, and various customs of death.
- 480: Psychology of Women.** 0-3-3. Overview of psychology of women including its history, theory, methodology, sex differences, sex roles, and implications for development, socialization, abnormal behavior, counseling and women's roles.
- 481: Psychology of Men.** 0-3-3. Preq., Psychology 102. An introduction to men's roles as they have been traditionally defined by society and as they are changing and developing in the world today. Sp.
- 484: Introduction to Human Relations.** 0-3-3. An introduction to human relations factors in various work settings.
- 485: Industrial Behavioral Analysis.** 0-3-3. Application to behavior change techniques in work settings. A study of how to effectively manage others' as well as one's own work habits.
- 486: Introduction to Decision Making.** 0-3-3. An introduction to decision making models and methods.
- 487: Human Relations Communication.** 0-3-3. A study of how communications influences human relation in different contexts.
- 500: Individual Testing I.** 3-2-3. Preq., Psychology 300 and Psychology 321 or Counseling 505. Study of the Stanford-Binet Intelligence Scale with emphasis upon practice in administering, scoring, and interpreting test results.
- 511: Advanced Educational Psychology.** 0-3-3. An indepth study of the major theories of learning with an emphasis on reviewing contemporary research relating to human learning and the application of psychological principles to instructional technology.
- 513: Theoretical Foundations of Human Relations.** 0-3-3. Preq., consent of advisor. Psychological principles of human relations as applied in a variety of social settings. An eclectic but integrative perspective presenting a theoretical basis for skills development.
- 516: Development of Human Relations Skills.** 0-3-3 Preq., Psychology 513 and consent of advisor. A continuation of the psychological study of human relations emphasizing skills development.
- 517: Human Relations in Industry.** 0-3-3. A study of the basic principles of psychology and how these principles may be applied in industry for more effective human relations.
- 518: Behavioral Analysis in Industry.** 0-3-3. Application of behavioral analysis in industry. A study of concepts, principles, and skills essential for designing and implementing a behavior change plan in organizational settings.
- 519: Psychology of Decision Making.** 0-3-3. A study of the techniques and issues in the process of decision making.
- 520: Individual Testing II.** 3-2-3. Preq., Psychology 300 and Psychology 321 or Counseling 505. Study of the Wechsler Intelligence Scales with emphasis upon practice in administering scoring and interpreting test results.
- 522: Communication in Human Relations.** 0-3-3. A review of the concepts, principles, and skills essential for effective communication in working with people.
- 523: Leadership Theories and Research.** 0-3-3. Examination of theories of leadership and leader behavior; a critical examination and survey of research which has been conducted on leadership and leader behavior.
- 524: Internship.** 20-1-3. Preq., permission of advisor. Supervised practice in interviewing, developing human relations skills, and field work in human relations.

QUANTITATIVE ANALYSIS

- 220: Introduction to Business Information Systems.** 0-3-3. Preq., Sophomore standing. Concepts of information systems including use of electronic computers. Su,F,W,Sp.
- 233: Basic Business Statistics.** 0-3-3. Preq., Quantitative Analysis 220 or consent of instructor. Descriptive statistics, probability, sampling distributions, confidence intervals, inference, and regression and correlation. Emphasis is given to business application. Su,F,W,Sp.
- 333: Operations Management.** 0-3-3. Preq., Quantitative Analysis 233. Analysis and design of decision and production systems including applications of inventory control, forecasting, quality control, and linear programming. Su,F,W,Sp.
- 338: Business Applications with FORTRAN.** 0-3-3. Preq., Junior standing, preferably will precede other programming courses. Programming problems and systems for business, industry, and government using the FORmula TRANslator (FORTRAN) language.
- 339: Business Applications with COBOL and RPG.** 0-3-3. Preq., Junior standing. Programming problems and systems of increasing complexity for business, industry, and government using the Common Business Oriented Language (COBOL) language.
- 340: Business Applications with BASIC.** 0-3-3. Preq., junior standing. Programming problems and systems for business, industry, and government using the Beginner's All Purpose Symbolic Instruction Code (BASIC). F, W, Sp, Su.
- 390: Quantitative Methods for Business and Economics.** 0-3-3. Preq., Junior standing. Presentation and review of pertinent quantitative topics to furnish the necessary background for the DBA quantitative methods field of study.

- 391: Information Systems.** 0-1-1. (Not open to students who have had Quantitative Analysis 220.) Background in information systems.
- 422: Business Applications with PL/I.** 0-3-3. Preq., knowledge of another programming language. Programming problems and systems for business, industry, and government using the Programming Language One (PL/I).
- 430: Management Science Methods.** 0-3-3. Preq., Quantitative Analysis 333. Linear programming including sensitivity analysis, the transportation problem, inventory analysis, and PERT.
- 432: Intermediate Business Statistics.** 0-3-3. Preq., Quantitative Analysis 333. Applied statistical methods utilizing the computerized Statistical Analysis System; multiple regression and correlation, chi square, analysis of variance, and non-parametric methods.
- 435: Information Systems Analysis and Design.** 0-3-3. Preq., Quantitative Analysis 220 or equivalent and senior standing. Information systems for management decision making; systems construction and computer utilization, organizational concepts, systems analysis and data systems designed for accounting, marketing, production, personnel, and finance. F,Sp.
- 436: Advanced Data Management and Computer Analysis.** 0-3-3. Preq., a high level processing language. Advanced application in systems design and utilization of current programming packages. An individual project is required.
- 522: Advanced Business Statistics.** 0-3-3. Preq., Quantitative Analysis 333. Applied Statistical methods utilizing the computerized statistical analysis system (SAS): multiple regression and correlation, biased regression, analysis of variance, multiple comparisons, and non-parametric methods.
- 523: Multivariate Statistics: Business Applications.** 0-3-3. Preq., Quantitative Analysis 333. Regression extensions, canonical correlation, multivariate ANOVA, discriminant, business applications, principal components using SAS, SPSS, and BMD, factor and cluster analysis.
- 525: Management Science.** 0-3-3. Preq., Quantitative Analysis 333. Introduction to management science methods, mathematical and dynamic programming; applications of operations research methods to management.
- 535: Advanced Computer Applications.** 0-3-3. Preq., knowledge of a programming language. Seminar in the management use and organization of future computer systems; computer languages, time sharing, real-time systems, multiprocessing and multiprogramming as applied to business and finance areas.
- 540: Advanced Management Science Methods.** 0-3-3. Preq., Quantitative Analysis 390 or equivalent. Quantitative analysis in management decision making including linear, integer and parametric programming; project planning and scheduling with CPM/PERT and MAP as applied to business management.
- 541: Advanced Management Science Methods.** 0-3-3. Preq., Programming Language. Systems analysis for management control: design, construction, testing, and operation of process models for simulation; simulation of queuing, inventory and large-scale industrial models.
- 550: Individual Research Problems.** 1-3 hours credit. Hours and credits to be arranged. Special problems in statistics, operations research, or management science solved with the aid of an electronic computer. Research report required which describes the problems, methods, results and conclusions.

READING

- 099: Developmental Reading.** 0-3-3. Builds reading fundamentals which are essential for comprehension of college-level textbooks. Develops skills in word recognition, comprehension, functional reading, vocational, library and reference skills.
- 200: Reading Skills Improvement.** 0-3-3. This course is designed to assist any student who would like to improve basic reading skills. Emphasis on comprehension, concentration and speed. F,W,Sp.

ROMANCE LANGUAGES

- 501: Methods and Sources in Romance Scholarship.** 0-3-3. Preq., consent of instructor. Primary bibliographical sources. Linguistic and literary theories, historical and comparative analysis for research in Romance Languages and literatures. Emphasis on Spanish and French.

RUSSIAN

- 101-102: Elementary Russian.** 0-3-3 each. Russian orthography, pronunciation, basic grammar and the reading of simple texts. 101-F; 102-W.
- 201: Russian Reading.** 0-3-3. The cultivation of a facility in reading modern literary texts. Sp.
- 202: Russian Composition.** 0-3-3. A systematic review of Russian grammar with a view toward improving the student's control of written Russian. Su.
- 203: Russian Phonetics.** 0-3-3. A detailed study of the sounds of Russian, and the inculcation of proper speech habits. F.

SOCIAL SCIENCE

- 470: Senior Reading Program.** 0-3-3. A reading course in selected basic works optional for all majors in geography, history, political science, and sociology. Su,F,W,Sp.

SOCIAL WELFARE

- 200: Introduction to Social Welfare.** 0-3-3. The history of social work as a field: body of knowledge; method and process of operation of the specialized social work services in contemporary society. F,W.
- 301: Social Welfare as an Institution.** 0-3-3. Preq., Social Welfare 200 or consent of instructor. A study of social welfare services, philosophy and the ethics underlying present practices and systems. W.
- 350: Interventive Strategies in Social Welfare.** 0-3-3. A presentation of basic knowledge, social work skills and theories used in social work practice. Socio-cultural factors affecting the delivery of services. Sp.
- 431: Practicum in Supervised Field Experience.** 0-3-3. Preq., Consent of instructor. Designed to provide students with supervised experiences which apply problem solving to processes while understanding groups and individuals of special concern to social agencies. F,W,Su.

SOCIOLOGY

- 201: Principles and Elements of Sociology.** 0-3-3. An introduction to the structures and processes of group behavior. Su,F,W,Sp.
- 202: Social Problems.** 0-3-3. Selected social problems in contemporary American society. Su,F,W,Sp.
- 205: Introduction to Anthropology.** 0-3-3. Introduction to the origin and development of man; the nature and development of culture. Su.
- 210: Introduction to Criminal Justice.** 0-3-3. A survey of the criminal justice system, its history and organization at the local, state and federal levels. Sp.
- 301: Sociological Concepts.** 0-3-3. Use of literature to understand social concepts and human behavior. Work emphasized includes that of Steinbeck, Orwell, Kafka, Faulkner, Mailer, Joyce and others. W.
- 304: Social Psychology.** 0-3-3. Preq., Psychology 102 or Sociology 201. A study of the nature of social behavior; a psychological analysis of society and social institutions. W.
- 306: Juvenile Delinquency.** 0-3-3. Preq., Psychology 102 or Sociology 201 or 202. The nature, causes, extent, and methods of treatment of juvenile delinquency. Sp.

- 308: The Family.** 0-3-3. A study of the family as a social institution with comparisons of family life in various societies. Su,W.
- 312: Minority Groups.** 0-3-3. Minority/dominant relationships, their effect on individuals and the society. Su,W.
- 313: The Sociology of Deviance.** 0-3-3. Factors and conditions which underlie disagreement about fundamental values; their relation to social maladjustment; evaluation of theories; group approaches to reintegration. W,Su.
- 314: Criminology.** 0-3-3. Theories of the origins of crime; analysis of specific types of offenders, prevention, control, and treatment. F,Sp.
- 318: Social Control.** 0-3-3. Informal and formal regulative processes in social behavior, with reference to techniques and processes of social control. Su.
- 320: Research Methods.** 0-3-3. Preq., Math 200 or consent of instructor. Scientific methods and their application in social analysis; procedures in testing sociological theory; collection and evaluation of data. W.
- 331: Sport and Society.** 0-3-3. Preq., Soc. 201 or consent of instructor. Social contributions and problems of amateur and professional sport. W.
- 340: Urban Sociology.** 0-3-3 The influence of socio-cultural factors and their consequences for urban America. F.
- 345: Social Stratification.** 0-3-3. Types and results of social inequality; social class, status and power as determinants of behavior, values and life chances. W.
- 401: Social Theory.** 0-3-3. Preq., Junior standing. The development of sociological theory and its relation to research.Sp.
- 410: The Sociology of Child Abuse.** 0-3-3. The study of family violence with emphasis on the reasons for child abuse and effects on the community. Special emphasis on prevention and treatment. W, Su.
- 416: Sociology of Education.** 0-3-3. The education system and the larger society; education as a social structure and process; implications for students, teachers and administrators. W,Su.
- 420: Treatment of Offenders.** 0-3-3. Preq., Sociology 314. A study of principles of treatment of offenders; application of social science principles to treatment of offenders; interviewing, guidance, and counseling of offenders. Sp.
- 424: The Sociology of Corrections.** 0-3-3. Trends, issues and problems in the field of corrections. W.
- 444: Alcohol and Alcohol Abuse.** 0-3-3. Social, cultural and individual problems associated with the use of alcohol. Family and other group responses. Emphasis on the nature and treatment of alcoholism. Su, W.
- 460: Population Problems.** 0-3-3. Preq., Junior standing. Scientific analysis of population distribution, composition, growth, migration, and vital processes. F,Sp.

SPANISH

- 101-102: Elementary Spanish.** 0-3-3 each. Conversation, reading and grammar. Su,F,W,Sp.
- 103-104: Spanish in the Language Laboratory.** 3-0-1 each. Specific conversational activities. Su,F,W,Sp.
- 201-202: Intermediate Spanish.** 0-3-3 each. Preq., Spanish 102 or equivalent. Structure, cultural reading, conversation. Su,F,W,Sp.
- 204: Spanish in Multicultural Contexts.** 0-3-3. Preq., Spanish 201. Intercultural communication in Spanish. Review of linguistic, cultural and sociolinguistic aspects of Spanish-speaking lands. Sp.
- 301-302: Spanish Conversation and Composition.** 0-3-3 each. Preq., Spanish 202 or equivalent. Non-native speakers only. Conversation on everyday topics and review of elements of Spanish through structured composition. W,Sp.
- 350-351: Aural Spanish.** 4-2-3 each. Preq., 15 hours of Spanish or consent of instructor. Activities with aural Spanish. Introduction to interpreting. Su.
- 372: Folklore and Traditions of Spanish Lands.** 0-3-3. Preq., 15 hours of Spanish or consent of instructor. Traditions, folklore, folk heritage, children's literature of Spanish lands. Su.
- 380: Readings in Spanish Literature.** 0-3-3. Preq., consent of instructor. Required for major in Spanish. A survey of the masterpieces of Spanish literature. F.
- 381: Readings in Spanish American Literature.** 0-3-3. Preq., consent of instructor. Required for major in Spanish. Survey of the masterpieces of Spanish American literature. W.
- 390: Hispanic Children's Literature.** 0-3-3. Preq. Spanish 202 or consent of instructor. A study of Spanish-speaking stories, songs, rhymes and games. Su.
- 403: The Novel in Spain.** 0-3-3. Preq., Spanish 380 or 381 or consent of instructor. A study of the novel in Spain from the sixteenth century to modern times. F,W, odd.
- 405: The Modern Drama of Spain.** 0-3-3. Preq., consent of instructor. A study of the drama in Spain in the 19th and 20th centuries.
- 407: The Novel of Latin America.** 0-3-3. Preq., consent of instructor. A study of representative novels of Latin America. Mexico excepted. Sp, odd.
- 408: Spanish Civilization.** 0-3-3. Preq., 15 hours of Spanish or consent of instructor. Lectures and readings in Spanish history, geography, government, language, music, art, etc. W, odd.
- 425: The Novel in Mexico.** 0-3-3. Preq., consent of instructor. A study of outstanding novels from 1800 to contemporary times. Su.
- 450: The Spanish Language.** 0-3-3. Preq., Spanish 202 or instructor's consent. Advanced grammar. General characteristics of the language, including sources, etymology, dialects. F.
- 460: Applied Linguistics for Spanish.** 0-3-3. Preq., consent of instructor. Pertinent theories of psycholinguistics and sociolinguistics. Contrastive study of Spanish and English patterns and structures. W, Su.
- 480: Commercial Spanish.** 0-3-3. Preq., 15 hours of Spanish or consent of instructor. Study of common commercial forms for use in Spanish correspondence and business. Su.
- 501: History of the Spanish Language.** 0-3-3. Preq., consent of instructor. Development and characteristics of the language from vulgar Latin to the modern period. Contrastive analysis with other Romance languages including sources and etymology.
- 502: Spanish Literature before the Golden Age.** 0-3-3. Preq., consent of instructor. Study of Medieval Spanish prose and poetry with emphasis on the 'Canter de Mio Cid', 'Libro de Buen Amor', Berceo, and Juan Manuel's didactic prose.
- 503: Prose Fiction of the Golden Age.** 0-3-3. Preq., consent of the instructor. Examination of the main novelistic currents, including sentimental, picaresque, pastoral, celesnesque, and didactic.
- 504: El Quijote.** 0-3-3. Preq., consent of instructor. Style, content, structure, and influence of 'El Quijote'. Literary antecedents, interpretations, and critical reception.
- 506: Drama in the Golden Age.** 0-3-3. Preq., consent of instructor. A study of the drama in Spain's Golden Age from precursors until the death of Caleron de la Barca. Emphasis on Lope, Tirso, Alarcon, Calderon.
- 507: Seminar in Peninsular Poetry.** 0-3-3 (6). Poets of the Golden Age, the Romantics, the Generation of '27, the Surrealists, and trends among contemporary poets. May be repeated for credit as topic varies.
- 508: Seminar in Latin American Poetry.** 0-3-3 (6). Preq., consent of instructor. Poetry of the colonial period, neo-classicism, romanticism, pre-modernism, postmodernism, and trends among contemporary poets. May be repeated for credit as topic varies.
- 519: Independent Studies.** 0-3-3 (6). Preq., consent of Graduate Committee. Students will work independently taking into consideration individual needs and interest on a topic to be determined in collaboration with the course instructor.
- 520: Seminar in Spanish Literature.** 0-3-3 (6). Preq., consent of instructor. Examination and analysis of selected areas, works,

and problems in Spanish literature. May be repeated once with a variation in content.

- 521: Seminar in Spanish American Literature.** 0-3-3. Preq., consent of instructor. Examination and analysis of selected areas, works, and problems in Spanish American Literature. May be repeated once with a variation of content.

SPECIAL EDUCATION

- 300: Introduction to Exceptional Students.** 0-3-3. A survey of the physical, emotional, social, and learning characteristics of exceptional students; educational programs; incidence and prevalence. Su,F,W,Sp.
- 301: Specific Learning Problems in Students.** 0-3-3. Preq., Special Education 300. Learning principles, issues, specific deficits in learning; assessment and remediation of problems in visual and auditory perception, cognitive processes, language; gross and fine motor coordination. W.
- 302: Characteristics of Exceptional Students.** 0-3-3. Preq., Special Education 300. Specific problems in cognitive, language and social skills related to academic and vocational training, special educator's role in management, planning, and resource or community interaction.
- 303: Characteristics of Severely and Profoundly Handicapped Students.** 0-3-3. Preq., Special Educ. 300. An overview of education of student classified as severely and profoundly handicapped, including educationally relevant physical, cognitive and behavioral characteristics.
- 325: Introduction to Mental Retardation.** 0-3-3. Preq., Special Education 301. Medical, psychological, social, and educational aspects of mental retardation. Su,F,Sp.
- 335: Information on Childhood Diseases and Crippling Conditions.** 0-3-3. Emphasis on orthopedic conditions and chronic medical health problems with implications for education, psychology, social work, and occupational, physical, and speech therapy. Sp.
- 340: Management of Behavior Disorders.** 4-2-3. Preq., Special Education 300. Foundations of behavioral science, operant analysis of human behavior, learning principles, behavior modification principles and techniques; educational programs, supervised application of skills and techniques covered. W.
- 341: Psycho-social Management of Exceptional Students.** 4-2-3. Preq., Special Education 300. Non-behavioral teaching interventions emphasizing biophysical, psychodynamic, sociological, and ecological strategies; supervised application of skills and techniques using an instructional model which synthesizes strategies covered.
- 360: Education of the Partially Seeing Child.** 0-2-2. Preq., Special Education 301. Learning behavior, curriculum adaptation, educational programs, environmental movement and control, and behavioral characteristics of children with visual impairment. Sp.
- 375: Education Procedures and Materials in Special Education.** 4-2-3. Preq., Special Education 300 & 302 or permission of instructor. Educational procedures in developing and implementing curricula in the areas of self-help, language, social skills, motor skills, vocational skills, cognitive skills, and functional academics.
- 376: Materials and Methods for Severely and Profoundly Handicapped Students.** 4-2-3. Preq., Special Education 303 or permission of instructor. Educational procedures in developing and implementing curricula in the areas of self-help, language, social skills, motor skills, vocational skills, cognitive skills, and functional academics.
- 460: Introduction to the Education of Preschool Handicapped Children.** 2-3-3. An introduction to the nature and needs of preschool handicapped children. Students will review literature, publications, trends, and model programs.
- 461: Teaching Strategies for Preschool Handicapped Children.** 4-2-3. Preq., Sp Ed 300, 460, and Home Ec 301. Emphasis on specific programs, materials and strategies for teaching

young preschool children who have serious handicapping conditions. Areas covered include perceptual, motor, and intellectual development.

- 462: Language and Cognitive Development in Preschool Handicapped Children.** 4-2-3. Preq., Sp Ed 461. An emphasis on the identification, assessment and remediation of problems in language and cognitive development of preschool handicapped children.
- 463: Early Identification and Evaluation of Exceptional Children.** 4-2-3. Preq., Sp Ed 460. Early identification and evaluation principles and procedures, parent interviews, norm- and criterion-referenced measures; diagnostic evaluative assessment incorporated into individualized educational planning.
- 464: Parent Involvement and Community Resources for Education for the Exceptional Student.** 0-3-3. Preq., Sp Ed 300 and Sp Ed 460. Parent-teacher dualities and the dyadic process between student and teacher; material planning and implementation by parents through teacher modeling; community services.
- 465: Transdisciplinary and Ancillary Services in Special Education.** 4-2-3. Preq., Sp Ed 30 and 460. Study of related services to the handicapped, team control and contributions, strategies used in integrating overall life-experience planning and implementation.
- 471: Prevocational Skills and Procedures for Exceptional Students.** 4-2-3. Preq., Sp Ed 375 and 475. Competency-based prevocational education incorporated with curriculum design and informal assessment; long-term planning for vocational needs, occupational guidance. W.
- 472: Vocational Procedures and Practices for Exceptional Students.** 4-2-3. Preq., Sp Ed 471. Experienced-based vocational education; process-oriented curriculum development; planned learning activities; formal assessment procedures; utilization of community resources; occupational preparation; review of exemplary programs. Sp.
- 475: Advanced Procedures in Special Education.** 7-1-3. Preq., Special Education 375 or permission of instructor. Individually supervised and systematically organized observation and participation in evaluative and educational procedures with exceptional students.
- 477: Advanced Procedures in Educating Severely and Profoundly Handicapped Students.** 4-2-3. Preq., Sp Ed 303 and 376 or permission of instructor. Diagnostic-prescriptive teaching procedures for educating severely and profoundly handicapped students, including criterion-referenced assessment procedures and individualized educational programming.
- 490: Psycho-social and Educational Appraisal of Exceptional Students.** 3-2-3. Preq., Education 402 and Sp Ed 300 or consent of instructor. Concepts of measurement applied to exceptional students; normative assumptions; measures of receptive and expressive language; social maturity; and perceptual-motor functions, observations of procedures.
- 495: Psycho-social and Educational Appraisal of Exceptional Students II.** 7-2-3. Preq., Special Education 490. Supervised administration of individual diagnostic tests, developmental scales, measures for the handicapped, interpretation and application to individualized educational planning and report writing. W.
- 500: Curriculum Design for Exceptional Students.** 4-2-3. An examination of issues and strategies required in selecting and developing curriculum for exceptional students. Emphasis on the scope and sequence of curriculum for all areas of exceptional students.
- 501: Contemporary Issues in Special Education.** 0-3-3 (6). Historical and comparative approaches to theoretical issues and research, critical examination of assumptions, sampling, and tactics of research.
- 502: Psychosocial and Educational Appraisal of Exceptional Students III.** 7-1-3. Preq., Special Education 490. Administration and interpretation of specialized individual tests, infant development scales, non-verbal tests for linguistically impaired,

verbal tests for sensory handicaps, and accelerated academic assessment.

- 503: Educationally Disadvantaged.** 0-3-3. Biological, learning, interpersonal, and motivational determinants of behavior, cultural deprivation as a factor in school learning; educational implications.
- 504: Education of Exceptional Students.** 0-3-3. An overview of special education emphasizing social, physical, emotional, and educational components of exceptional students including history and current legislation.
- 510: The Exceptional Adolescent Student.** 0-3-3. Advanced course designed to acquaint the student with the complex challenges of the exceptional adolescent. Emphasis on remedial efforts, pre-vocational and vocational skills needed by the exceptional adolescent.
- 512: Consulting Strategies for Assessment Teachers.** 0-3-3. Preq., Special Education 490. Development of teacher and parent consultation skills, coordination and interaction of the education assessment teacher with classroom programs, and available community resources. W,Su.
- 515: Education of Gifted Students.** 0-3-3. The nature and needs of exceptionally able students with special emphasis on curriculum adjustment and research in the field. Sp.
- 516: Methods and Materials for the Gifted-Talented.** 4-2-3. Preq., Consent of area coordinator. Process of materials utilization and development for teachers of gifted/talented students, including procedures for implementing creativity, problem solving activities, and higher levels of cognition.
- 517: Curriculum for the Gifted/Talented.** 0-3-3. Preq., consent of area coordinator. Curriculum models in gifted/talented education, emphasizing essential principles and skills necessary for designing, implementing, and evaluating educational plans for gifted/talented students.
- 520: Advanced Study: Mental Retardation.** 0-3-3. Preq., Education 541 and Special Education 501. Advanced study of the biological, social, and psychological factors in retarded behavior.
- 530: Advanced Study: Nonsensory Physically Impaired.** 0-3-3. Preq., Education 541 and Special Education 501. Advanced study of the biological, social, and psychological factors in crippling conditions and special health problems.
- 540: Advanced Study: Behavior Disorders.** 0-3-3. Preq., Education 541 and Special Education 501. Advanced study of the biological, social, and psychological factors in behavior disorders.
- 550: Field Work in the Education of Exceptional Students.** 12-0-3 (6) Preq., Special Education 575. Internship in the application of principles of learning and child development from a behavioral approach to the educational needs of exceptional students.
- 560: Administration in Special Education.** 0-3-3. The major administrative and supervision functions necessary for the effective operation of special education programs and the major areas of knowledge necessary to carry out these basic functions.
- 561: Diagnostic/Prescriptive Educational Strategies and Materials for the Exceptional Students.** 4-2-3 (6). Individualized interfacing of learning characteristics of exceptional students with curriculum requirements and environmental structure; emphasis on individualized prescriptive strategies and programs. W.
- 562: Advanced Study: School-Related Language Problems in Special Education.** 0-3-3. Analysis of language deviations and disorders in classroom situations, understanding of assessment, approaches and models for remediation/enrichment. Intervention and flexibility in curriculum development. Sp.
- 570: Advanced Study: Learning Disabilities.** 0-3-3. Advanced study of the biological, social, and psychological factors in learning disabilities.
- 575: Behavior Technology in Special Education.** 3-2-3. Preq., Special Education 475. Remediation of severe learning and behavior problems in students through programming and behavior modification; use of automated equipment for direct control of stimuli and contingencies.

SPEECH

- 110: Principles of Speech.** 0-3-3. Designed to develop the principles of effective oral communication in typical speaker-audience situations, through practice in informative and persuasive speaking. (Cannot be taken for credit if student has credit for Speech 377.) Su,F,W,Sp.
- 200: Discussion and Debate.** 0-3-3. Preq., Speech 110 or equivalent. A study of the principles of group discussion and debate with practical experience in each. F.
- 201: Introduction to Theatre.** 0-3-3. A comprehensive overview of the elements that comprise the theatre; intended as a basic preparation for an understanding of theatre art. F.
- 202: Supervised Observation.** 3-0-1. This course is designed to provide students with supervised observation of diagnostic and therapy sessions with clients who present speech, language and/or hearing disorders.
- 210: Introduction to Communicative Disorders.** 0-3-3. A study of the various disorders of communication, their nature, etiology, and treatment. F.
- 211: Public Speaking.** 0-3-3. Preq., Speech 110 or permission of instructor. This course is concerned with developing advanced skill in special occasion speeches, the book review, the entertaining speech, and effective reading from an original speech. W.
- 222: Phonetics.** 0-3-3. A study of vocal and physical aspects of standard American language and deviations therefrom as found in various regional dialects of the United States. W.
- 225: Persuasion.** 0-3-3. A study of motivational factors involved in persuasive speaking to secure belief and action.
- 240: Acting.** 0-3-3. Basic training in the art of acting with emphasis upon the physical and vocal skills required for character portrayal. W.
- 308: Dactylography.** 0-2-2. An introductory course in manual communication of the deaf; emphasis on drills and exercises to help students acquire a sign vocabulary and conversational fluency.
- 312: Clinical Procedures.** 7 1/2-2-4. Students are taught principles and procedures used with clients with speech disorders through lecture, observation and supervised clinical experience. F,W,Sp.
- 315: Oral Interpretation of Literature.** 0-3-3. Preq., Speech 110. Advised, Speech 211. The development of responsiveness to prose, poetry, and drama, and the ability to communicate the logical emotional and aesthetic elements to others. F.
- 330: Speech for Prospective Teachers.** 0-3-3. Preq., Speech 110. Fundamentals of oral communication in the classroom with emphasis on the effective use of speech in lecture, discussion, question and answers, and audio/visual usage.
- 340: Introduction to Broadcasting.** 3-2-3. Consideration of the fundamentals of broadcasting; includes field trips to observe operations of nearby radio and television stations. Sp.
- 350: Broadcast Writing/Editing.** 3-2-3. Script preparation, writing to and for film and videotape for broadcast by radio or television. F.
- 360: The Mass Media.** 0-3-3. Consideration of these media from the viewpoint of their audiences; emphasizes the development of objective standards for evaluating mass communications. Open to all students. F.
- 361: Television Techniques.** 3-2-3. Provides direct experience in the production of television programs, using closed-circuit studio facilities and videotape equipment. W.
- 370: Broadcast Advertising.** 3-2-3. The creation, preparation and delivery of commercial messages for radio and television. Sp.
- 371: Broadcast News.** 3-2-3. The gathering, preparation, and delivery of news for broadcast by radio and television. W.
- 377: Professional Speaking.** 0-3-3. Designed to establish a foundation for effective speaking in informative speaking, in the interview, and in the communication from the manuscript. (Cannot be taken for credit if student has credit for Speech 110.) Su,F,W,Sp.

- 401: Stagecraft.** 4-3-4. Practical experience in scenery construction, painting, stage lighting, and organizational techniques. F.
- 402: Advanced Acting.** 0-3-3. Preq., Speech 240. A study in the practice of styles of acting from ancient Greece to the present. Sp.
- 404: Theatre Practicum.** 4-0-1. Practical experience in interpretation, acting, directing, or technical theatre. May be repeated for a maximum of 4 hours credit. Su,F,W,Sp.
- 406: Play Production.** 0-3-3. An introductory course in the problems of play production, including directing, scenery construction and painting, stage lighting, backstage organization, stage makeup and costuming. W.
- 407: Advanced Play Production.** 0-3-3. Preq., Speech 406. A seminar course with emphasis on play directing. Each person registering for this course will produce and direct a full-length play for public production. Sp.
- 411: Diagnostic Procedures.** 0-3-3. Principles and procedures for differential diagnosis of speech and language disorders. Administration and interpretation of various tests, parent interviewing, and clinical observation of behavior. Sp.
- 412: Advanced Clinical Procedures.** 7 1/2-2-4. Preq., Speech 312. Students are given supervised clinical experience with a variety of speech and language disorders utilizing clinical populations in a variety of settings. F,W,Sp.
- 413: Articulation.** 0-3-3. A study of the nature, etiology, and retraining procedures related to defective articulation with emphasis on current research. W.
- 415: Shakespeare.** 0-3-3. The major plays and the poems. (Same as English 415.)
- 416: Advanced Oral Interpretation of Literature.** 0-3-3. Preq., Speech 315. A continuation of Speech 315 in which the student increases skill in analyzing literature, and further develops the ability to communicate the author's meaning. Sp.
- 418: Language Disorders in Children.** 0-3-3. Preq., Speech 470. A beginning course in the study of language disorders in children with emphasis on evaluation and treatment procedures. W.
- 420: Voice Science.** 0-3-3. The anatomy and physiology of the speech and hearing mechanism and the acoustic and perceptual characteristics of speech sounds.
- 424: The Development of the Theatre.** 0-3-3. A study of the evolution of the theatre from ancient to modern times.
- 425: Stuttering.** 0-3-3. A beginning course in stuttering and allied disorders with emphasis on symptomatology, evaluation, rehabilitation, and prevention. F.
- 428: Contemporary Developments in Theatre.** 0-3-3. A study of theatre development since 1900. This course will cover trends, movements, and genres in all areas of theatre. Sp.
- 430: Nonverbal Communication.** 0-3-3. Study of the effects of space, physical properties of persons, movement, eye and vocal behavior on interpersonal communication.
- 431: Organizational Communications.** 0-3-3. Focuses on the factors related to communication processes within government, private, and volunteer organizations.
- 432: Internship in Organizational Communication.** 10-1-3. Focuses on career goals of students and places them in communication positions with public, private, and volunteer organizations. Enrollment by permission of instructor.
- 440: Interpersonal Communication.** 0-3-3. Study of the verbal and nonverbal dimensions of interpersonal relationships including dialogues, interviews and dyadic systems.
- 443: Introduction to Audiology.** 0-3-3. Study of the auditory mechanism, physics of sound, the process of hearing, disorders of hearing and their treatment. F.
- 444: Hearing Testing.** 0-3-3. Preq., Speech 443. A lecture-laboratory course dealing with pure-tone, air and bone conduction audiometry, speech audiometry, and special tests used in audiometric evaluation. W.
- 445: Aural Rehabilitation.** 0-3-3. Preq., Speech 444. Principles and procedures of retraining hard of hearing children and adults, including auditory training, speech reading, and the effects of hearing loss on total development. Sp.
- 446: Voice Disorders.** 0-3-3. An introduction to voice disorders, their symptomatology, etiology, diagnosis, and treatment. F.
- 453: Rhetorical Theory.** 0-3-3. The evaluation of speech composition from classical to modern times.
- 460: Applied Forensics.** 3-0-1. Practical experience in debate and other forms of forensic speaking. May be repeated for a maximum of 4 hours credit. Su,F,W,Sp.
- 465: Applied Practicum.** 6-0-2. Practical experience in clinical activities related to service programs. May be repeated for a maximum of 6 hours credit. Registration by permission of instructor.
- 466: Group Processes.** 0-3-3. Theory and practice of conducting group meetings, group discussions, to include parliamentary procedure.
- 470: Language and Speech Development.** 0-3-3. Study of the normal acquisition and maintenance of speech and language; theoretical formulations about speech and language behavior, and approaches to its study. F.
- 480: Voice for the Stage.** 0-3-3. A study of the use and training of the human voice for performance utilizing the Lessac system of voice training. F.
- 500: Introduction to Research.** 0-3-3. A course designed to introduce students to research applicable to speech and theories of measurement including statistical and behavioral designs, reliability and judgments.
- 501: Seminar.** 0-3-3. Individual problems and research in any of the following general areas of concentration; speech communication; speech-language pathology; audiology; theatre arts. Registration by permission of instructor.
- 502: Studies in Scene Design.** 0-3-3. Preq., Speech 406. A seminar course in the history, theory, and practice of design and construction of stage scenery.
- 504: Seminar in Language Disorders in Children: Remediation.** 0-3-3. Etiologies, remediation techniques, principles, and programs for the language disorders found among children and adolescents.
- 508: Practicum in Communicative Disorders.** 6-0-2- (8) . Supervised clinical experience with individuals who have disorders of communication.
- 510: Speech Science.** 0-3-3. Study of normal speech and voice production with emphasis on respiratory and phonatory mechanism, speech acoustics, speech perception and control.
- 511: Studies in Stage Costuming.** 0-3-3. Preq., Speech 406. A seminar course in the history, theory, and practice of design and construction of stage costume.
- 512: Seminar in Parent Counseling.** 0-3-3. Study of literature pertaining to parents of children with communicative disorders, emphasizing therapeutic and/or educational approaches.
- 513: Seminar in Articulation Disorders.** 0-3-3. Study of current research in articulation, testing, prediction, and management procedures.
- 515: Theatre Management.** 0-3-3. Study of theatre management concentrating on organization of business and administrative areas of theatre.
- 518: Interpretation of Contemporary Drama.** 0-3-3. Preq., Speech 315 and 319. A study of American and European Drama from 1940 to the present with major emphasis on oral performance.
- 519: Clinical Supervision.** 7 1/2-2-4. Students are taught principles and procedures involved in clinical supervision. They assist faculty supervisors in their work with beginning student clinicians. May be repeated.
- 520: Seminar in Language Disorders in Children: Assessment.** 0-3-3. Preq., permission of instructor. A study of the standardized and non-standardized techniques used to assess language disordered children and adolescents.
- 522: Experimental Phonetics and Linguistics.** 0-3-3. Study of selected current issues and developments in experimental phonetics with opportunity for individual research projects.

- 523: Aphasia.** 0-3-3. A study of the etiology and symptomatology with emphasis on principle theoretical treatment, instruments for evaluation and methods of clinical management of aphasia and related disorders.
- 524: Seminar in Voice Disorders.** 0-3-3. A study of the etiology, symptomatology and treatment procedures for voice disorders, including those that result from laryngeal pathologies.
- 525: Cleft Palate.** 0-3-3. A study of the articulatory, resonance and phonatory problems associated with cleft palate and facial maxillary disturbances including medical and speech therapy, habilitative and rehabilitative procedures.
- 526: Seminar in Stuttering.** 0-3-3. A critical review of the literature to synthesize information regarding the definition of stuttering, theories of etiology, symptomatology, therapy and methods of research.
- 527: Differential Diagnostic Procedures.** 0-3-3. Practice in selecting, administering, scoring and interpreting appropriate tests for a variety of speech/language disorders. Participation in diagnostic clinics is required.
- 528: Neurological Disorders.** 0-3-3. A study of communication disorders which result from damage to the central and peripheral nervous system, their etiology, symptomatology, diagnosis, and treatment.
- 530: Special Problems in Communicative Disorders.** 0-3-3. Registration by permission of instructor. Individual research assignments in speech pathology an audiology.
- 531: History of Drama.** 0-3-3. Preq., Speech 424. A survey of dramatic literature from ancient times to the present.
- 532: Theories of Directing.** 0-3-3. A seminar course in the theories of major innovators in directing from Saxe-Meiningen to the present.
- 533: Differential Audiology.** 0-3-3. Discussion, demonstration and interpretation of special tests used to differentiate various audiological problems.
- 534: Qualitative Research Methods.** 0-3-3. The use of observational and interviewing research techniques for studying human communication.
- 535: Hearing Aids.** 0-3-3. Involves discussion of hearing aids, selection procedure, and the amplification needs of the individual.
- 536: Analysis and Criticism of Drama.** 0-3-3. A seminar course in the theory of critical analysis of drama from Aristotle to the present.
- 537: Seminar in Interpersonal Communication.** 0-3-3. Interpersonal communication theory and research including topics concerning acquaintance, attitudes, language, nonverbal codes, and dyadic and small group communication patterns.
- 538: Theories of Acting.** 0-3-3. A seminar course examining theories and approaches to acting from Stanislavsky to the present.
- 539: Seminar in Organizational Communication.** 0-3-3. Topics include theories of organizational communication, consultation, research and field experience in organizations, communication in organizational settings and communication styles in decision making.
- 540: Industrial Audiology.** 0-3-3. Directed toward the study of management and control of hearing problems in industry, and conservation of hearing in occupations and activities involving excessive noise exposure.
- 543: Seminar in Pediatric Audiology.** 0-3-3. Investigation of the audiological problems of children.
- 544: Communication in Small Groups.** 0-3-3. Study of theory and research in the dynamics of small group communication processes with emphasis on the interaction of message variables with other variables.
- 545: Clinical Audiological Experience.** 9-0-3. Supervised practice in the use of various audiological tests on patients having hearing impairments. Includes report writing and counseling procedures. May be repeated one time for credit.
- 546: Conference Course in Speech Communication.** 0-3-3. Readings in the literature of speech communication designed to

expand opportunities for individual consultation both in research and in informational aspects of the student's work.

- 547: Internship.** Advanced practicum in organizational communication in public, private and volunteer organizations.
- 548: Psychoacoustics.** 0-3-3. A study of the experimental areas of audiology that are directed toward developing a theory of auditory functioning. May be repeated one time for credit.
- 549: Seminar in Educational Audiology.** 9-0-3. Review of topical areas in aural rehabilitation for the infant through geriatric population.

STATISTICS

- 200: Basic Statistics.** 0-3-3. Preq., Two semester hours of mathematics numbered above 107 or consent of instructor. Sample statistics, frequencies, estimation, significance testing, correlation, deviation, basic probability, expected values, sampling, normal regression. W,Sp.
- 402: Introduction to Statistical Analysis.** 0-3-3. Preq., Junior standing and the consent of the instructor. Understanding and applying: descriptive statistics, p-values, estimation, significance, regression, correlation. Use of packaged computer programs. W.
- 418: Introduction to Statistical Procedures.** 0-3-3. Preq., consent of instructor. Sampling, normal population, group-comparisons, tests of hypothesis, t-test, F-ratios, correlation, regression and one-way analysis of variance.
- 428: Experimental Design.** 0-3-3. Preq., Statistics 418. Multiway analysis of variance to include randomized block design, Latin square design, Graeco-Latin square design, factorial analysis, repeated measures design, and split-plot design.
- 448: Theory of Probability.** 0-3-3. Preq., Math 330 or consent of instructor. Discrete and continuous density functions, expected value moments and moment generating functions, central limit theorem.
- 549: Theory of Statistics.** 0-3-3. Preq., Stat 448 or consent of instructor. Sampling distributions, point estimation, interval estimation, hypothesis testing, linear models.
- 558: Linear Statistical Models.** 0-3-3. Generalized inverses, quadratic forms, Gauss Markov Theory, estimability, full rank models, non-full rank models and covariance.
- 568: Experimental Design.** 0-3-3. Preq., Stat 428. Incomplete block design, hierarchical designs, confounding, fractional replicates, response surface analysis.
- 570: Stochastic Processes.** 0-3-3. Preq., Stat 448. Generating functions, recurrent events, random walk models, Markov processes, branching processes, homogenous and non-homogenous processes, queuing processes.

STUDY SKILLS

- 099: Developmental Study Skills.** 0-2-2. Identification and application of practical study techniques and attitudes associated with college success; identification of goals; time management and scheduling.

TECHNICAL DRAFTING

- 101: Elementary Drafting.** 6-1-3. Care and use of drawing equipment. Freehand lettering. Freehand sketching and mechanical drawing of simple objects.
- 102: Machine Drafting.** 6-0-2. Preq., Technical Drafting 101. Continuation of Technical Drawing 101. Sections, auxiliary views and dimensioning.
- 103: Working Drawings.** 6-0-2. Preq., Technical Drafting 102. Assembly drawings. Tolerancing. Threads and fasteners. Mating parts.
- 201: Technical Illustrations.** 6-0-2. Preq., Technical Drafting 102. Axonometric drawings. Oblique drawings. Perspective drawings.

- 202: Advanced Topics in Technical Drawings.** 6-0-2. Preq., Technical Drafting 103. Machine drawings, welding drawings, tool design drawings, structural drawings, process flowcharts.
- 204: Piping Drafting.** 6-0-2. Preq., Technical Drafting 101, 201. Fundamental piping drawing as used in refinery and petrochemical plant design.
- 205: Development of Surfaces.** 6-0-2. Preq., Engineering 162. Developmental drawings of all classes of surfaces; intersections.

VETERINARY SCIENCE

- 301: Anatomy and Physiology of Animals.** 3-2-3. The structures and functions of the tissues and organs of animals. Sp.
- 401: Animal Pathology.** 3-2-3. Preq., Bacteriology 210. The etiology, symptoms, prevention, control, and eradication of the major diseases of farm animals. F.

ZOOLOGY

- 105: Zoology and People.** 0-3-3. A course for general academic students. Presents cellular, genetic, developmental, morphological and physiological aspects of zoology especially as they relate to humans and their environment. Not designed for students desiring to pursue additional zoology courses. Su,F,W,Sp.
- 111: Concepts in Zoology.** 0-3-3. Designed for freshmen majoring in science fields and prerequisite to all other zoology courses. Principles, problems and experimental methods of animal biology, including studies of cellular, tissues and organ levels of development in ecological, evolutionary and genetic contexts. Su,F,W,Sp.
- 112: Laboratory Studies in Zoology.** 3-0-1. Preq., Zoology 105 or 111 or concurrent enrollment. Student-oriented experiments integrated with a survey of animal life. Su,F,W,Sp.
- 115: Animal Diversity.** 0-3-3. Preq., Zoology 111 and 112 or equivalent. A study of the diversity of form and function based on the several animal phyla. W,Sp.
- 116: Animal Diversity Laboratory.** 4 1/4-0-1. Coreq., Zoology 115. Laboratory studies on diversity in animal phyla. W,Sp.
- 202: Comparative Anatomy of Vertebrates.** 8 1/2-2-4. Preq., Zoology, 111, 112, 115, 116. Comparative anatomy and evolution of the vertebrates. F,Sp.
- 225: Human Anatomy and Physiology.** 0-3-3. Consult with your advisor. The structures and functions of the organ systems of the human body, including anatomy of the vocal and hearing mechanisms. Not open to students in premedicine, predentistry or zoology majors. Su,F,Sp.
- 226: Anatomy and Physiology Laboratory.** 4 1/4-0-1. Preq., credit for or registration in Zoology 225. A laboratory to permit the student to observe through specially designed exercises the physiology and anatomy of mammals. F,W,Sp.
- 227: Advanced Human Anatomy and Physiology.** 0-3-3. Preq., Zoology 225 or equivalent. An in-depth study of the organ systems of the human body with emphasis on coordination and integration of structure and function. W, Su.
- 228: Advanced Anatomy and Physiology Laboratory.** 4 1/2-0-1. Preq., Zoology 227 or equivalent. Additional laboratory exercises to illustrate the anatomy and physiology of animals. W, Su.
- 284: Introduction to Marine Science.** 8-3-4. Preq., Zoology 111, 112. Introduction to chemical, geological and biological processes in the oceans and coastal environments and their interactions; interrelationships of man and the marine environment. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory. Su.
- 285: Introduction to Marine Zoology.** 8-3-4. Preq., Zoology 111, 112, 115, 116. Survey of marine animals, particularly those of the Louisiana Gulf Coast, including classification, morphology, physiology, and ecology. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory. Su.

- 310: Animal Genetics.** 4 1/4-2-3. Preq., Zoology, 111, 115 or consent of the instructor. Principles of inheritance at the biochemical, cellular, organismal and population levels with emphasis on standard laboratory organisms, wild and domesticated animals, and human applications. F, W.
- 313: Animal Ecology.** 4 1/4-2-3. Preq., Zoology 111, 112. The fundamental principles of ecology as they apply to population dynamics, communities and zoogeographic distribution of animals. F,Sp.
- 315: Cell Biology.** 0-3-3. Preq., Zoology 111, 112. The cell is studied as to the structural and functional organization of the protoplasm, and its relation to metabolism and heredity. W.
- 317: Game Management Techniques.** 4 1/4-2-3. Preq., Zoology 111, 112. A study of the principles and techniques employed in the management of game birds and mammals and their identification. W, even.
- 320: Animal Physiology.** 0-3-3. Preq., Zoology 111, 112 115, 202. Coreq., Zool 321. A general and comparative approach to the principles and concepts of Physiology which apply to animal systems. F, Sp.
- 321: Animal Physiology Laboratory.** 4 1/4-0-1. Coreq., Zoology 320. Laboratory studies in animal physiology. F,Sp.
- 350: Zoological Problems.** 4 1/4-0-1- (6) Preq., junior standing and written permission of instructor. An introduction to the principles of research. Su,F,W,Sp.
- 400: Microscopy: Theory and Application.** 4 1/4-1-2. The written permission of instructor required. The theory and practice of light microscopy, photomicroscopy and microtechnique. F,Sp.
- 401: Parasitology.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116 or equivalent. Protozoan and helminthic parasites of medical and veterinary importance to man. Lecture and lab emphasize morphology, life cycle, pathogenesis, disease manifestations, diagnosis and control. F,Sp.
- 405: Histology.** 8 1/2-1-3. Preq., Zoology 320, 321, or equivalent. Microscopic study of animal tissues with emphasis on functional and structural interrelationships. W.
- 410: Advanced Genetics.** 4 1/4-2-3. Preq., Zoology 310 or Life Sciences 300 or consent of the instructor. Principles, techniques and experimental methods for investigations of chromosomal variation, pedigree analysis, metabolic pathways, polygenic traits and population genetics. Sp, even.
- 411: Developmental Biology.** 6-2-3. Preq., Zoology 111, 112, 115, 116 or permission of instructor. A study of gametogenesis, fertilization and the embryological development of organisms using descriptive and experimental approaches. W.
- 414: Entomology.** 4 1/4-2-3. Preq., Zoology 105 or 111, 112, or equivalent. Study of insect structure, classification, life cycles and control practices, with emphasis on economic pests. F, even.
- 415: Pestology.** 0-3-3. Preq., Zoology 111, 112, or by permission of instructor. Study of the arthropods that are vectors of disease organisms to man and animals and the economic losses resulting from these pest infestations. F.
- 420: Environmental Physiology.** 4 1/4-3-4. Preq., 12 hours of Zoology including 320 and 321. Functional adaptations of animals to their environments, with emphasis on vertebrates. Lab consists of a formal research project. F, odd.
- 423: Endocrinology.** 0-3-3. Preq., Zoology 320, 321, or equivalent. A study of the embryology, anatomy, biochemistry, and physiology of the endocrine glands in various animals. Sp.
- 425: Electron Microscopy.** 6-2-3. Written permission of the instructor required. Essential methods for routine biological electron microscopy: instrument operations, photomicrography, tissue sectioning and knife preparation. W.
- 426: Evolution.** 0-3-3. Preq., Zoology 111 or equivalent. A study of the concepts, problems and methods involved in the formulation of modern evolutionary theory. Sp, odd.
- 429: Ichthyology.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116 or equivalent. Systematics, anatomy, and ecology of fish with emphasis on local freshwater species. F, even.

- 430: Herpetology.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116 or equivalent. The taxonomy, distribution, life histories, and ecology of the Herptiles, with special emphasis on those species found in Louisiana. Sp, even.
- 432: Mammalogy.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116 or equivalent. The identification, taxonomy, characteristics and general biology of mammals with emphasis upon those of North America. W.
- 433: Ornithology.** 4 1/4-2-3. Identification, taxonomy, characteristics, and general biology of birds, with emphasis upon those in North America. Sp.
- 434: Limnology.** 4 1/4-2-3. Preq., Zoology 111, 112, 115, 116 or equivalent. The study of the chemical, physical and biotic aspects of the freshwater environment. F, odd.
- 436: Field Zoology Problems.** 4 1/4-2-3. Preq., Zoology 111, 112, or equivalent or permission of instructor. A study of the natural history of ectothermic vertebrates and aquatic ecology. Offered on demand.
- 437: Field Zoology Problems.** 4 1/4-2-3. Preq., Zoology 111, 112, or equivalent or permission of instructor. A study of the natural history of warm-blooded vertebrates and terrestrial ecology. Offered on demand.
- 439: Marine Science for Teachers.** 2-8-3. Survey of the marine sciences, techniques for teaching marine science at secondary and elementary school levels. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory. Su.
- 450: Zoological Topics.** 0-3-3. An opportunity to observe and discuss topics of current interest in the biological and/or medical sciences. Offered on demand.
- 480: Undergraduate Seminar.** 0-1-1- (2) . Preq., senior standing. Required of all senior zoology majors. Supervised study, reports, and discussion of current zoological literature. Su,F,W,Sp.
- 484: Marine Vertebrate Zoology.** 8-3-4. Preq., Zoology 111, 112, 115, 116 plus 8 additional hours of Zoology. General study of the marine chordates with particular emphasis on fishes, including classification, structure, function, and ecology. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory. Su.
- 485: Marine Ecology.** 8-3-4. Preq., Zoology 111, 112, 115, 116; Botany 101, 104; Chemistry 101, 102, 103, 104. Relationships of marine and estuarine organisms to environmental factors; interactions among organisms; ecological processes of energy and materials flow; communities and ecosystem of the Louisiana coastal zone. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory. Su.
- 486: Marine Invertebrate Zoology.** 8-3-4. Preq., Zoology 111, 112, 115, 116. General study of the classification, structures, function and ecology of marine and estuarine invertebrates, emphasizing those of the Louisiana Gulf coast. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory. Su.
- 510: Biology of Water.** 4 1/4-2-3. Preq., Permission of the instructor. A detailed study of biotic adaptations and the effects of environmental changes in the aquatic ecosystem with emphasis on aquatic vertebrates. Sp, odd.
- 515: History of Zoology.** 0-3-3. The historical development of the science of Zoology, the persons who contributed to this development, and the nature of the times which produced them. Offered on demand.
- 516: Contemporary Topics.** 0-3-3. An opportunity to examine and discuss a variety of timely topics pertaining to the Zoological Sciences. Offered on demand.
- 520: Zoological Systematics.** 0-1-1. A detailed study of taxonomic principles and procedures based on the International Rules of Zoological Nomenclature. W, even.

COUNCILS, COMMITTEES, COMMISSIONS

The President and the appropriate Vice President are "ex-officio" members of all councils and committees.

ADMINISTRATIVE COUNCIL: F. Jay Taylor, Chairman; Hal B. Barker, George Byrnside, Elenora A. Cawthon, Jerry W. Andrews, Jeanne M. Gilley, O. Jean Hall, Wiley Hilburn, Jr., Patsy Lewis, Bob R. Owens, Robert F. Patterson, Paul J. Pennington, Dan Reneau, C. Ray Wimberly, John E. Maxfield, Chairman of the Faculty Senate, Student Government Association President.

ADMINISTRATIVE REVIEW BOARD: Vice President for Student Affairs, Chairman; Vice President for Academic Affairs, Dean of the College in which the student is registered.

ASTRONOMY ADVISORY COMMITTEE: Milton Johnson, Chairman, Arthur Bruce, Antohny Galli, and Norman Witriol.

ATHLETIC COUNCIL: H. J. Smolinski, Chairman; Jerry W. Andrews, Patrick Garrett, James L. Hester, Wiley W. Hilburn, Jr., Paul J. Pennington, Daniel Reneau, Milton Williams, Student Representative, Bob Vanatta (non-voting).

BEHAVIORAL STANDARDS COMMITTEE: The Behavioral Standards Committee shall be selected from a roster composed from the following: twelve faculty members appointed by the Vice-President for Academic Affairs; one senior male and one senior female appointed by the Residence Hall Association (RHA); four senior men and four senior women students appointed by the President of the University from a list of six senior men and six senior women nominees submitted by the Student Association; and a chairperson and alternate chairperson appointed by the Vice President for Student Affairs.

CAMPUS PLANNING COMMISSION: Campus Engineer, Chairman; Deans of Academic Colleges, Dean of Student Life, Athletic Director, Physical Plant Director.

CIVIL DEFENSE COMMITTEE: Robert F. Patterson, Chairman, Dan Reneau, George Byrnside, John Trisler, Ron Thompson, Ray Janway, W. D. McBride.

COUNCIL OF ACADEMIC DEANS: Vice President for Academic Affairs, Chairman; Hal B. Barker, Jerry W. Andrews, Jeanne M. Gilley, Patsy Lewis, Bob R. Owens, Paul J. Pennington, C. Ray Wimberly, John E. Maxfield.

COMMENCEMENT COMMITTEE: Bill J. Attebery, Chairman, Bill Carter, Bill Deese, Fern Fifield, Ann Futrell, Angela Jones, Ray Janway, Albert Lazarus, Calvin Lemke, Shirley Norman, Linda Sivils, Raymond Young, Two Student Members.

FACULTY SENATE: The membership includes elected representatives from the Faculty who are employed full time and professional personnel engaged in Specialized Academic Services. Members shall serve for a term of three years.

FEE COMMITTEE: Dan Reneau, Chairman; George Byrnside, Jerry Drewett, Robert F. Patterson, President Student Government Association.

GRADUATE COUNCIL: John E. Maxfield, Chairman, Randall Barron, Harold Hedrick, Charles Foxworth, John Goertz, John Calhoun, Mike McCready, Phil Rice, Harold Pace, Paul Schauwecker, C. E. Cato, Jackie Garner, Ken Rea, Nancy Tolman, Ruth Ann Mears, James D. Lowther, graduate student representative.

GRIEVANCE COMMITTEE: The Executive Committee of the Faculty Senate shall select six members (one from each college); each division (including Student Affairs, Academic Affairs and Administrative Affairs) shall elect one member. Only non-classified staff personnel may be elected to represent the divisions. Members shall serve a three-year term of office.

HAZARDOUS WASTE CONTROL COMMITTEE: Dan Reneau, George Byrnside, Robert F. Patterson.

HEALTH SCIENCE ADVISORY COMMITTEE: Deon Gines, Chairwoman, Lou Stebbins, Suzanne Traweek, John Murad, John Schweitzer, James Akers, S. S. Kilgore, Virginia Pennington.

HUMAN USE COMMITTEE: James Green, M.D. Chairman, Daniel D. Reneau, John Murad, Tommy Grafton, Jackie Garner.

INSTRUCTIONAL POLICIES COMMITTEE: Dr. Albert Lazarus, Chairman, Dr. Bobby Price, Vice Chairman, Dr. P. W. Balsmeier, Dr. Homer Ponder, Dr. Pat Moseley, Dr. Ed Jacobs, Dr. Tommy Grafton, Dr. E. J. Miller, Dr. Mike Harnett, Dr. Lynda Clements, Dr. Shirley Reagan, Dr. John A. Wright, Mrs. Lynell Buckley, and two student representatives of Student Government Association.

INSURANCE AND RELATED BENEFITS COMMITTEE: George Byrnside, Dan Reneau, Robert F. Patterson, Don Dyson, Reggie Rives, Chairman.

LIBRARY ADVISORY COMMITTEE: Norman Byers, Chairman; Dalton Bigbee, David Buice, Deon Gines, John Goertz, Joy Lowe, P. B. Moseley, Haracharan Ranu, Linda Sivils, Martin Steffenson, Connor Walters, Don Wells, James White, Joe Wilson, Laura Wohlberg, Dudley Yates, One undergraduate student, one graduate student; alternates—Phillip Balsmeier, Judy Miller.

MUSEUM COMMITTEE: C. Wade Meade, Chairman, James Christian, Billy Davis, Jack Beard, John F. Leich.

PARKING AND TRAFFIC COMMITTEE: Vice President for Student Affairs, Chairman; representative from each of the academic colleges; Dean of Student Life; Director of Physical Plant; Campus Police Supervisor; one male and one female student appointed by the Residence Hall Association; Vice President of Student Association; three members of the Senate appointed by the SGA President.

PREMED/PREDENT ADVISORY COMMITTEE: John L. Murad, Chairman, Robert Eloff, Larry G. Sellers, Charles Horton, Albert W. Lazarus, Margaret H. Peaslee, Dale Snow, John C. Trisler, Scott M. Weathersby.

RADIATION COMMITTEE: R. H. Thompson, Chairman; Glenn Clark, Radiation Safety Officer, W. H. Brumage, James Malone, Winston Hackbarth, Nancy Tolman, student representative.

RESEARCH COUNCIL: John E. Maxfield, Chairman, Charles Bolz, Vice-Chairman, Randall Barron, Jerry Drewett, James R. Michael, John Murad, Bobby Price, Joe Thomas, Nancy Tolman, Virginia Melton, Dudley Yates, P. B. Moseley, Daniel Temple, one senior or graduate student.

SCHOLASTIC STANDARDS COMMITTEE: Hal B. Barker, Chairman, Jerry W. Andrews, Ross Dobbs, Jeanne M. Gilley,

Patsy Lewis, Bob R. Owens, Harold L. Pace, Paul J. Pennington, J. C. Seaman, C. Ray Wimberly, Dan Reneau, two student representatives.

SPACE UTILIZATION COMMITTEE: Dan Reneau, George Byrnside, and Robert F. Patterson.

STUDENT ORGANIZATIONS COMMITTEE: Dean of Student Life, Chairman; Vice Chairman of the Faculty Senate, Chairman of the Student Association Department of Internal Affairs and two members of that department, the Activities Director, a representative from the Division of Student Affairs, and advisor from: the Student Government Association, the

Union Board, the Interfraternity Council, and the Panhellenic Council, a student representative from: the Interfraternity Council, the Panhellenic Council.

UNIVERSITY TOUR COMMITTEE: Dean Paul Pennington, Chairman, Vice President Byrnside, Dr. John Leich, Mr. Jerry Drewett, Mr. Steve Rodakis, Student Government Association President.

WATER RESOURCES ADVISORY COMMITTEE: Bobby E. Price, Chairman; Randall Barron, James R. Michael, P. B. Moseley, John Murad.

UNIVERSITY FACULTY

Adams, John Clyde; *Associate Professor, School of Forestry*, —BSF, Ms, PHD, LA State Univ. (1976) Graduate Faculty

Akers, James B; *Professor and Head, Physical Education*, —AB, Drury College; MS, Kansas State Univ; EDD, Univ. of Arkansas. Graduate Faculty.

Albritton, Lou Ann; *Assistant Professor, Physical Education*, —BS, MS, La Poly Inst. (1965)

Allen, Larry David; *Professor and Head, Agricultural Education*, —BS, La Tech Univ; MS, Univ of Ark; PHD, LSU. (1979) Graduate Faculty

Allen, Phoebe; *Professor, Art*, —BA, MA, La Poly Inst.

(1965) **Anderson, Dale;** *Assistant Professor, Mechanical Engineering* —BS, ME, PHD, Brigham Young Univ. (1984)

Anderson, Dwight C; *Associate Professor, Economics and Finance* —BS, MBA, La Tech Univ; PHD, Univ of Alabama. (1979) Graduate Faculty

Andrews, Jerry W; *Dean, Education Administration*, —BS, MS, La Tech Univ; EDD, LSU. (1982) Graduate Faculty

Armstrong, Larry Bennett; *Associate Professor, School of Professional Accountancy*, —BS, La Poly Inst; MBA, La State Univ. (1966)

Attebery, Billy J; *Professor and Head, Mathematics and Statistics* —BSE, Univ of Central Ark; MA, Univ of Ark; PHD, Univ of Missouri. (1966) Graduate Faculty

Attrep, Abraham M; *Professor, History*, —BA, La College; MA, Tulane Univ; PHD, Univ of Georgia. (1962) Graduate Faculty

Badshah, Nur N.; *Professor, Medical Record Science*, —F. SC, Univ. of Peshawar; MD, King Edward Medical College. (1984)

Bailey, Don R.; *Assistant Professor, Music* —BS, Univ. of Southern Miss; MM, North Texas State (1984)

Baker, Riley E; *Associate Professor, Social Sciences*, —BS, MS, North Texas State Univ. (1962) Graduate Faculty

Balsmeier, Phillip W; *Associate Professor, Business* —BA, Emporia St. Univ; MS, Wichita St. Univ; PHD, Univ. of Ark. (1980) Graduate Faculty

Banks, Marva; *Assistant Professor, English*, —BA, Grambling; MA, La Tech. (1982)

Barker, Hal B; *Professor and Dean, Life Sciences Administration*, —BS, Tenn Poly Inst; MS, Iowa State Univ; PHD, Auburn Univ. (1949) Graduate Faculty

Barker, Jon Albert; *Associate Professor, Music*, —BA, Northeast La State College; MCM, SW Baptist Theological Sem; DMA, LSU. (1969) Graduate Faculty

Barron, Randall F; *Professor, Mechanical Engineering* —BS, La Poly Inst; MS, PHD, Ohio State Univ. (1965) Graduate Faculty

Baumann, Brenda; *Clinical Assistant Professor, Clinical Laboratory Science* —BS, Univ. of Rhode Island. (1983)

Baxter, Helen D.; *Instructor, Medical Record Science*, —BS, La Tech Univ. (1979)

Beard, Jack; *Professor, Art*, —BA, La Poly Inst; MA, Stephen F Austin Univ. (1963) Graduate Faculty

Bergusson, Robert Jenkins; *Professor, Art*, —BA, MA MFA, Univ of Iowa; AA, Corning Community College. (1970) Graduate Faculty

Bernard, William H; *Professor, Physics*, —BS, PHD, Tulane Univ. (1962) Graduate Faculty

Best, Mary Ann; *Assistant Professor, Nursing*, —BS, Baylor, Univ.; MSN, Texas Women's Univ. (1981)

Bigbee, Dalton L; *Assistant Professor, Economics and Finance*, —BA, Howard Payne College; MBA, Texas A & I Univ., DBA, Texas Tech. (1979) Graduate Faculty

Bizanti, Mahamed S.; *Assistant Professor, Petroleum Engineering*, —BS, MS, LSU; PHD, Univ of Oklahoma (1983)

Blanchard, Richard J.; *Clinical Professor, Clinical Laboratory Science* —BS, MD, LSU. (1984)

Bolz, Charles Redfern; *Research Director, Graduate Studies and University Research* —BA, Albion College; MA, PHD, Univ. of Illinois. (1982)

Bourgeois, Patricia McLin; *Associate Professor, Nursing* —BS, McNeese State Univ.; MSN, Northwestern State Univ. (1975)

Bradbury, Leslie Raven; *Assistant Professor, Music*, —BM, MM, Westminster Choir College. (1981) Graduate Faculty

Brady, Barbara Beth; *Instructor, Mathematics & Statistics*, —BS, Univ of Southern Miss; MS, La Tech. (1982)

Brantley, Burnelle W.; *Assistant Professor, Prescott Memorial Library*, —BA, MA, La Tech; MLS, LSU. (1974)

Brewer, John Clinton; *Professor, Barksdale Center*, —BA, Centenary College; MA, PHD, Univ. of Texas. (1970) Graduate Faculty

Britsch, Christine J; *Instructor, Prescott Library*, —BA, MA, Brigham Young Univ. (1984)

Brock, Nina Hue; *Clinical Associate Professor, Clinical Laboratory Science* —BS, McNeese State Univ. (1977)

Bruce, Arthur Chilton; *Professor, Mechanical Engineering*, —BS, MS, Va Poly Inst; PHD, Ga Tech. (1967) Graduate Faculty

Brumage, William Harry; *Professor and Head, Physics*, —BS, MS Okla State Univ; PHD, Univ of Okla. (1952) Graduate Faculty

Bryant, Leslie Ray, Jr.; *Clinical Professor, Clinical Laboratory Science* —BS, Univ of Miss; MD, Univ of Tenn. (1983)

Buckley, Lynell S.; *Assistant Professor, Prescott Library* —BA, MA, La Tech Univ.; MLS, Univ. of Mississippi (1971)

Budhu, Gowkarran; *Associate Professor, Civil Engineering* —BS, Ohio State Univ; MS, PHD, Virginia Poly. Inst. (1984)

Buerk, Donald G; *Assistant Professor, Biomedical Engineering*, —BS, MS, Case Western Reserve Univ; PHD, Northwestern Univ. (1982) Graduate Faculty

- Buice, S David;** *Professor, History*; — BA, Stetson Univ; MA, Univ of Southern Miss; PHD, Univ of Okla. (1966) Graduate Faculty
- Burns, Scott;** *Associate Professor, Geosciences*; — BS, MS, Stanford Univ.; PHD, Univ of Colorado. (1982) Graduate Faculty
- Burton, Eugene Paul;** *Professor, Mathematics & Statistics*; —BS, Henderson St; MA, Univ of Ark. (1955)
- Busch, Frank M;** *Associate Professor, Office Administration*; —BBA, North Texas State Univ; MBA, PHD, Indiana Univ. (1966) Graduate Faculty
- Bush, John M;** *Associate Professor, History*; —BSE, Ark State Teachers College; MA, PHD, Miss State Univ (1965) Graduate Faculty
- Butler, George M;** *Professor, Mathematics and Statistics*; —BS, MS, PHD, Okla State Univ. (1967) Graduate Faculty
- Byers, Norman F;** *Assistant Professor, Economics and Finance*; —BS, MA, Northwestern Univ; PHD, La Tech Univ. (1963) Graduate Faculty
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- Wisterman, Jack D.;** *Professor, Electrical Engineering* —BSE, La Poly Inst; MS, PHD, Miss State Univ. (1967) Graduate Faculty
- Witriol, Norman M.;** *Associate Professor, Physics* —MS, PHD, Brandeis Univ. (1977) Graduate Faculty
- Wolf, Morris Philip;** *Associate Professor, Business Communication* —BA, MA, New York Univ; PHD, Univ of Georgia (1982) Graduate Faculty
- Wohlberg, Laura;** *Instructor, Home Economics* —BS, MS, Oklahoma State Univ. (1980)
- Woodson, George Edwin;** *Associate Professor, School of Forestry* —BS, La Tech Univ; MS, Yale Univ; PHD, Colorado State Univ. (1980) Graduate Faculty
- Wright, John A.;** *Professor and Head, Agronomy and Horticulture* —BS, Tenn Tech Univ; MS, Iowa State Univ; PHD, La State Univ. (1953) Graduate Faculty
- Wylie, David F.;** *Assistant Professor, Music* —BA, BM La Tech Univ; MM, Univ of Ark. (1978)
- Yang, Schuman;** *Professor, Music* —BM, Wheaton College; MM, AM Conservatory of Music; EDS, PHD, George Peabody College. (1968) Graduate Faculty
- Yates, Dudley V.;** *Professor, Prescott Library* —BA, Northeast La Univ; MA, MS, La State Univ; PHD, Fla St U. (1980)
- Young, Raymond G.;** *Professor, Music* —BME, MS, Univ of Michigan. (1972) Graduate Faculty
- Zimmerman, Beverly Nelson;** *Assistant Professor, Speech* —BA, Univ. of Florida; MA, La Tech (1984)
- Zumwalt, Gary Spencer;** *Assistant Professor, Geosciences Engineering* —BA, Fresno State College; MS, PHD, Univ of California. (1980)

OTHER ADMINISTRATORS

Billy Joe Adcox, BA, MA, (1977)	Purchasing Officer
Randall Barron, B.S., M.S., Ph.D. (1965)	Director, Engineering Research and Graduate Studies College of Engineering
Rikki Black, B.F.A. (1979)	Director, Thomas Assembly Center
Charles Bolz, B.A., M.A., Ph.D (1982)	Director, University Research
Alex Boyd (1954)	Director/Manager, Bookstore
Buice, David, B.A., M.A., PHD (1966)	Compliance Coordinator
David W Carnal, B.S. (1973)	Director of Housing
Elenora A. Cawthon, B.S., M.Ed., Ed.D. (1955)	Dean of Student Services, Director of Placement
Clements, Lynda H., B.A., M.S., (1979)	Associate Dean, College of Home Economics
David Deal, B.S. (1980)	Financial Information Systems
Ross E. Dobbs, B.S., M.B.A. (1969)	Director, Barksdale Program
Jerry S. Drewett, B.S. (1972)	Business Manager
Don Dyson, B. S. (1979)	Director of Personnel
Charles Foxworth, B.A., M.A., Ph.D.	Director of Graduate Studies, College of Education.
J. Harold Gilbert, B.A., B.M.E., M.M. (1966)	Director, Louisiana Tech Concert Association
O. Jean Hall, B.A., M.A., E. ED (1985)	Dean of Student Life
Reggie Hanchey, B.A., M.R.E. (1974)	Coordinator of Federal Programs.
R. E. Hearn, B.A., M.A., Ed.D. (1970)	Director, A. E. Phillips Lab School
Harold G. Hedrick, B.A., M.A., Ph.D. (1969)	Director of Graduate Studies, College of Life Sciences
Wiley W. Hilburn, Jr., B.A., M.A. (1968)	Director of News Bureau
Edward R. Janway, B.S. (1969)	Director of Physical Plant
Robert J. Ledford, Jr., B.A., M.A. (1979)	Director, Division of Continuing Education
E. J. Lewis	Director of Planning & Development
F. Eugene Lueg, B.A. (1971)	Superintendent of Printing
George S. Mead (1979)	University Property Officer
James Robert Michael, B.S., M.B.A., D.B.A. (1968)	Director, Division of Administration and Business Research
P. B. Moseley, B.S., M.S., Ph.D. (1964)	Associate Dean and Director, Division of Research College of Arts and Sciences; Director, Division of Health Sciences
John L. Murad, B.A., M.A., Ph.D. (1965)	Director, Division of Life Sciences Research
Harold Pace, B.S., M.S., Ph.D. (1982)	Registrar
Homer G. Ponder, B.S., M.S., Ph.D. (1966)	Director, Undergraduate Division, College of Administration and Business
Jack Potter, B. S., M. S. (1966)	Campus Engineer
Bobby E. Price, B.S., M.S., Ph.D. (1967)	Director, Water Resources Center
	Director, Undergraduate Studies, College of Engineering.
Kenneth W. Rea, B.A., M.A., Ph.D. (1965)	Director of Graduate Studies, College of Arts and Sciences.
Philip F. Rice, B.S., M.B.A., Ph.D. (1968)	Director of Graduate Studies College of Administration and Business
Galen Rockett, B.A., M.A., (1977)	Director, Student Center
Steve D. Rodakis, B.A., B.S., M.A. (1966)	Director, Special Programs
J. C. Seaman, Jr., B.A., M.A., L.L.B. (1966)	Director, Division of Student Financial Aid
Bonita Smith, B.S., MBA, CPA (1979)	Assistant Comptroller
C. E. Sutton, B.A., M.A., Ed.D. (1969)	Director, Laboratory Experiences College of Education
Daniel B. Temple, B.S., M.S. (1980)	Director, Computing Center
D. Glenn Theis, B.S., M.S. (1970)	Associate Director of Housing
Joe Thomas, B.S., M.B.A. (1973)	Comptroller
Ronald Thompson, B.S., M.S., PHD (1973)	Director, Nuclear Center
Nancy Tolman, B.S., M.S., Ph.D. (1971)	Director of Graduate Studies and Director of Research; College of Home Economics
Phillip N. Washington, B.S., M.B.A. (1967)	Director of Institutional Research
John A. Wright, B.S., M.S., Ph.D. (1953)	Associate Dean, College of Life Sciences
Dudley Yates B.A., M.L.S., PH.D. (1980)	Director of Libraries

ATHLETIC PERSONNEL

Bob Vanatta	Athletic Director
Bill Cox	Director of Promotions
A. L. Williams	Head Football Coach
Jerry Arledge	Assistant Football Coach
Jerry Baldwin	Assistant Football Coach

John Causey	Assistant Football Coach
Randy Crouch	Assistant Football Coach
F. Bruce Hemphill	Assistant Football Coach
Joe Jones	Assistant Football Coach
Billy Laird	Assistant Football Coach
Joe Raymond Peace	Assistant Football Coach
Leon Barmore	Women's Head Basketball Coach
Gary Blair	Women's Assistant Basketball Coach
Bill Galloway	Women's Softball Coach
Tommy Joe Eagles	Men's Head Basketball Coach
Steve Welch	Men's Assistant Basketball Coach
James "Pat" Patterson	Baseball Coach
and Associate Athletic Director	
Michael Kane	Assistant Baseball Coach, Volleyball Coach, Rifle Coach and Soccer Coach
Billy Jack Talton	Powerlifting Coach
Jerry Dyes	Track and Field Coach
Frank Trammel	Assistant Track Coach
Clayton Taylor	Men's Tennis Coach
William Keith Prince	Sports Information Director
Bob Ramsey	Assistant Sports Information Director
Sam Wilkinson	Athletic Trainer
Bob Rash	Assistant Athletic Trainer

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