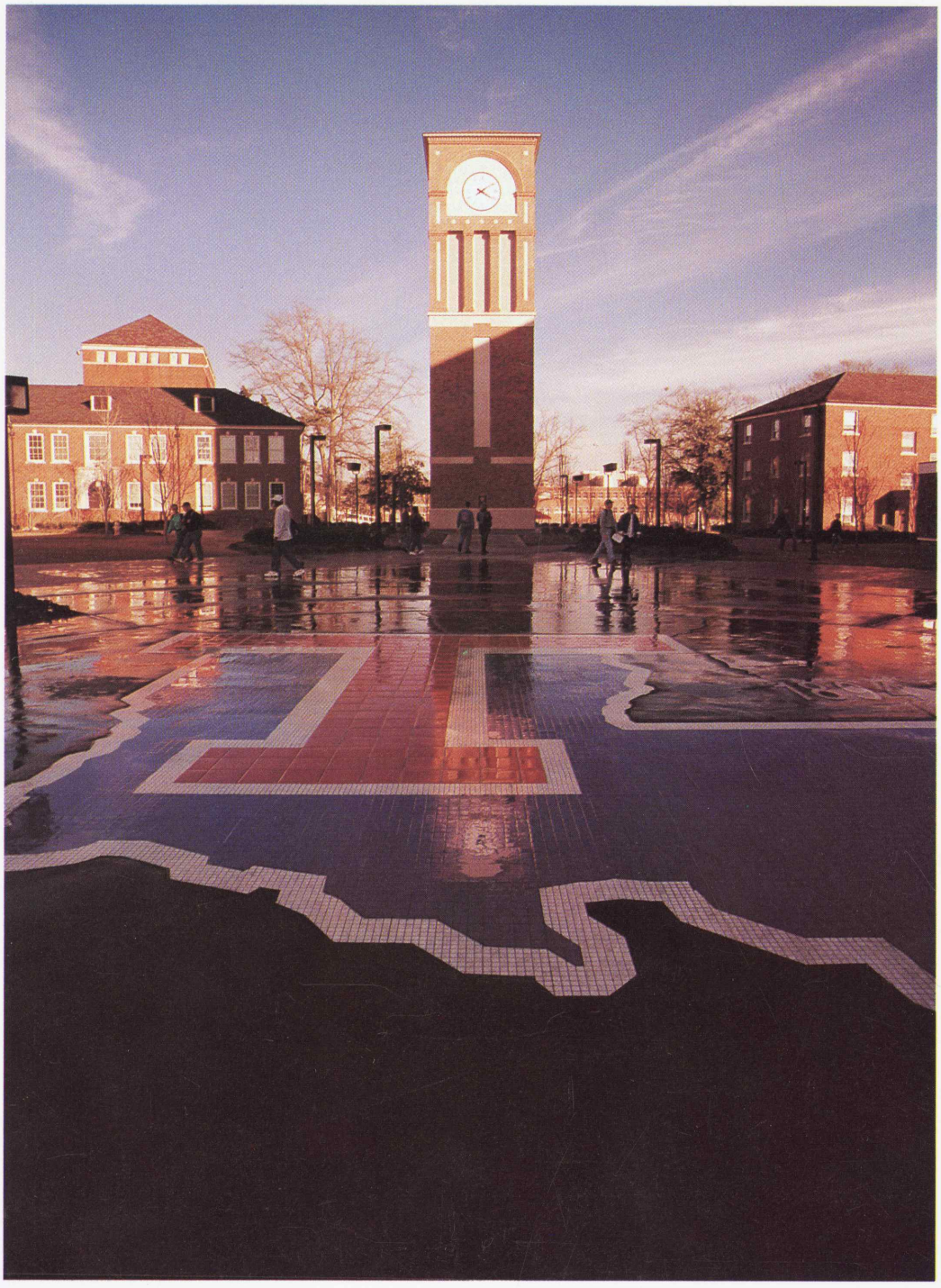
1996

1996-1997 Louisiana Tech University Catalog

Louisiana Tech University

LOUISIANA TECH UNIVERSITY

1996-1997



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 types of 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
Department of Air Force Aerospace Studies
College of Administration and Business
College of Arts and Sciences
College of Education
College of Engineering
College of Human Ecology
College of Life Sciences
The Graduate School

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

Daniel D. Reneau

President

BULLETIN
1996-1997

Louisiana Tech University Subscribes
To The Policy of Equal Opportunity

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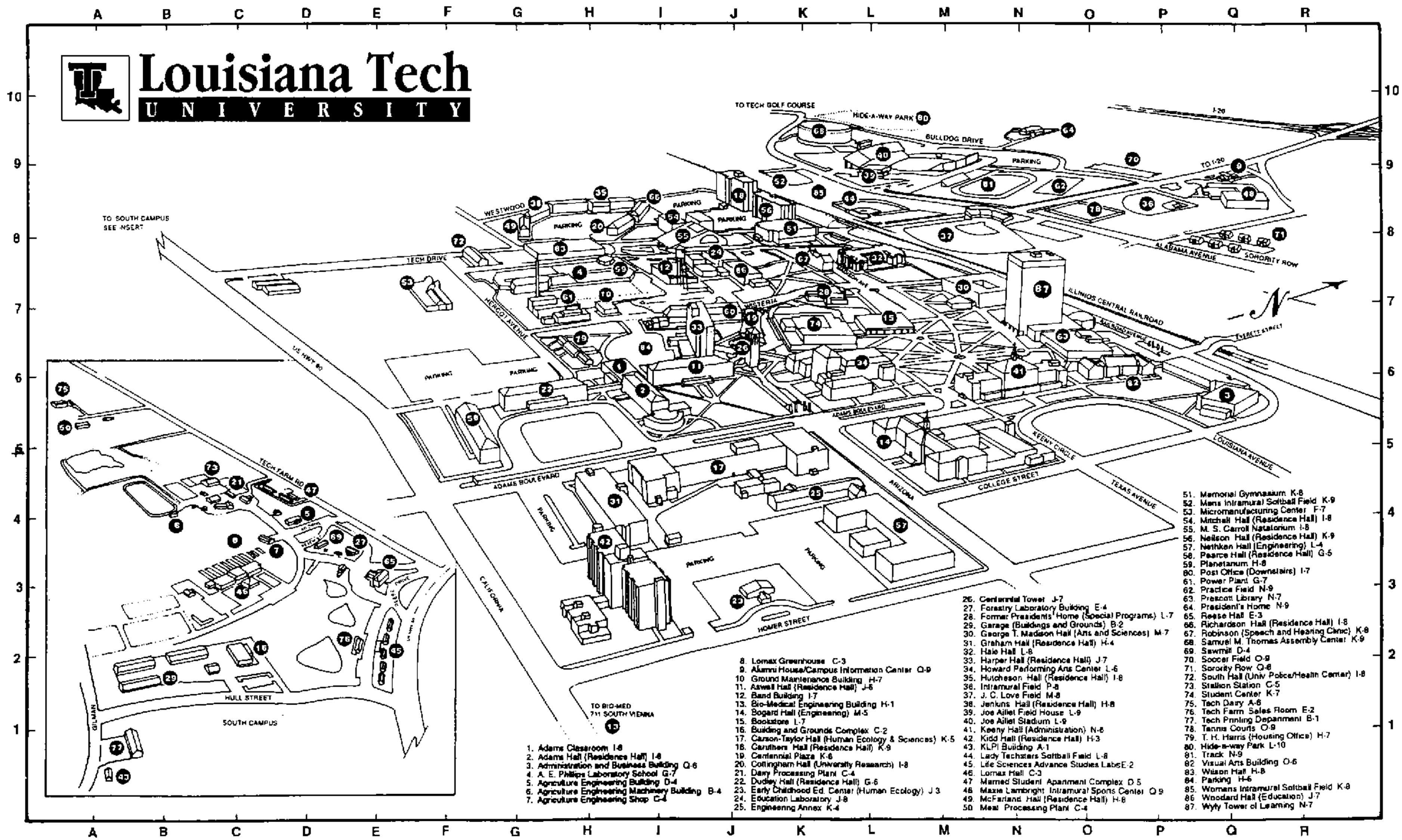
Louisiana Tech
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HIDE-A-WAY PARK
BULLDOG DRIVE
PARKING
TO I-20
I-20
WESTWOOD
TO SOUTH CAMPUS SEE INSERT
TECH DRIVE
HERGOT AVENUE
US HWY 80
WISTERIA
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ALABAMA AVENUE
SORORITY ROW
EVERETT STREET
ADAMS BOULEVARD
ARIZONA
KEENY CIRCLE
LOUISIANA AVENUE
COLLEGE STREET
TEXAS AVENUE
CALIFORNIA
HOMER STREET
TO BIO-MED 711 SOUTH VIENNA
TECH FARM RD
HULL STREET
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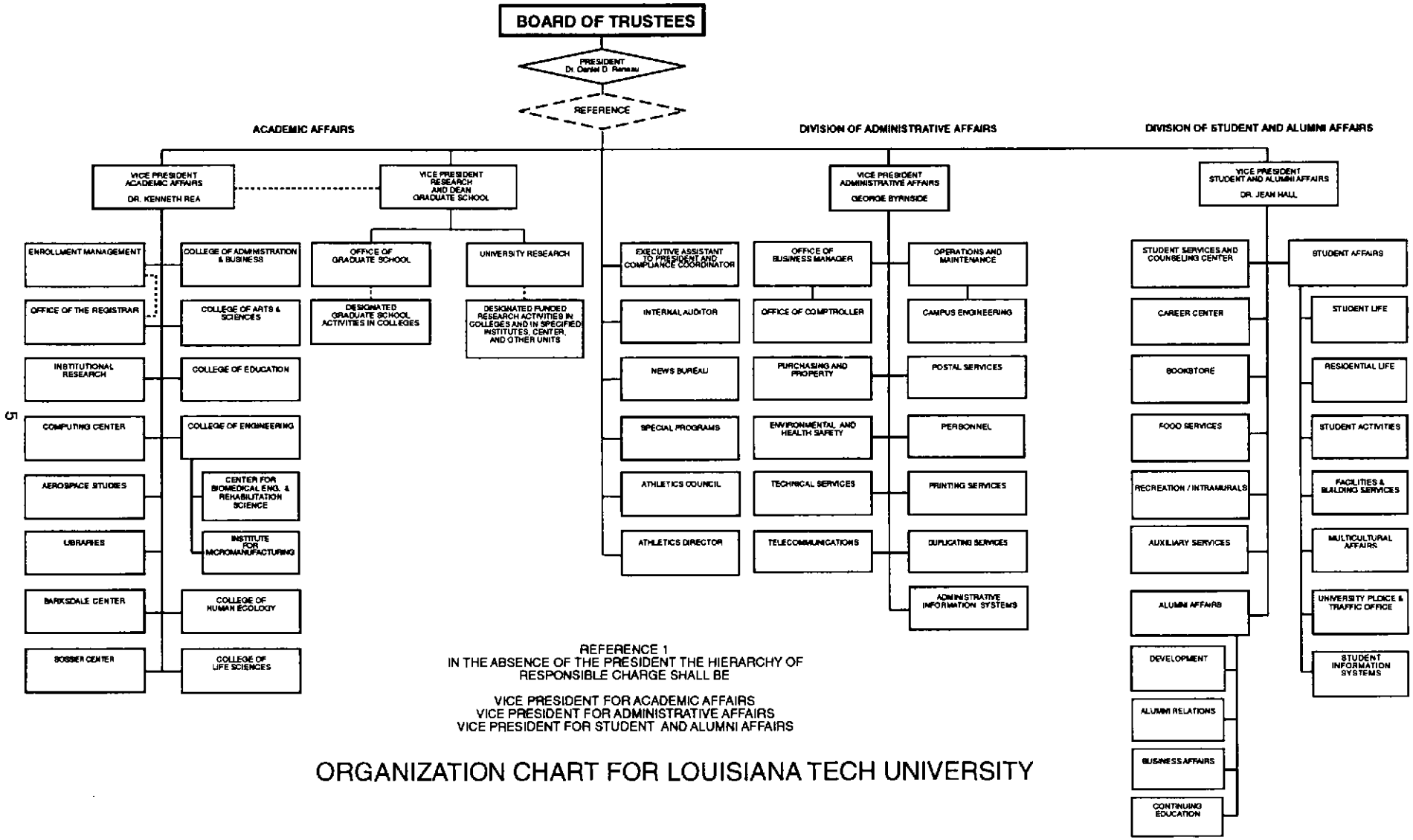

REFERENCE 1
IN THE ABSENCE OF THE PRESIDENT THE HIERARCHY OF RESPONSIBLE CHARGE SHALL BE

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VICE PRESIDENT FOR ADMINISTRATIVE AFFAIRS
VICE PRESIDENT FOR STUDENT AND ALUMNI AFFAIRS

ORGANIZATION CHART FOR LOUISIANA TECH UNIVERSITY

University Calendar

Academic Year 1996-97

Summer Quarter 1996

Mar.	26	Tues.	Completed applications and all transcripts for new international students due in Admissions Office
May	7	Tues.	Completed applications and transcripts for new graduate students due in Graduate School Office
	7	Tues.	Applications for undergraduate admission or readmission due in Admissions Office
	28	Tues.	Residence Halls open - 9:00 a.m.
	28	Tues.	English Placement Exam - 9:00 a.m.
	28	Tues.	Reading Placement Exam - 11:00 a.m.
	28	Tues.	Math Placement Exam - 1:00 p.m.
	28	Tues.	Foreign Language Placement Exam - 3:30 p.m.
	28	Tues.	Mini-orientation (first-time students) - 4:00 p.m.
	28	Tues.	Food Service opens, night meal
	29	Wed.	Summer Quarter begins
	29	Wed.	Registration for all students who have not early registered and fee payment
	30	Thurs.	Classes begin
July	3	Wed.	Fourth of July holiday begins, end of classes
	3	Wed.	First Session ends
	8	Mon.	Fourth of July holiday ends, 8:00 a.m.
	8	Mon.	Second Session begins
Aug.	9	Fri.	Last day of classes
	9	Fri.	Food Service closes, after night meal
	10	Sat.	Residence Halls close - 12:00 noon
	15	Thurs.	Commencement Exercises - 2:00 p.m., Thomas Assembly Center
	15	Thurs.	Summer Quarter ends
			Courses offered 1st session only - May 29 - July 3
			Courses offered 2nd session only - July 8 - Aug. 9

Fall Quarter 1996

June	17	Tues.	Completed applications and all transcripts for new international students due in Admissions Office
July	29	Mon.	Completed applications and transcripts for new graduate students due in Graduate School Office
	29	Mon.	Applications for undergraduate admission or readmission due in Admissions Office
Aug.	19	Mon.	Residence Halls open - 9:00 a.m.
	19	Mon.	Food Service opens, night meal
	19	Mon.	English Placement Exam - 9:00 a.m.
	19	Mon.	Reading Placement Exam - 11:00 a.m.
	19	Mon.	Math Placement Exam - 1 p.m.
	19	Mon.	Foreign Language Placement Exam - 3:30 p.m.
	19	Mon.	Mini-orientation (first-time students) - 4:00 p.m.
	20	Tues.	Fall Quarter begins
	20-21	Tues.-Wed.	Registration for all students who have not early registered and fee payment
	22	Thurs.	Classes begin
	30	Fri.	Labor Day Holiday begins, end of classes
Sept.	3	Tues.	Labor Day Holiday ends, 8:00 a.m.
Nov.	1	Fri.	Last day of classes
	1	Fri.	Food Service closes, after night meal
	2	Sat.	Residence Halls close, 12:00 noon
	7	Thurs.	Commencement Exercises - 2:00 p.m., Thomas Assembly Center
	7	Thurs.	Fall Quarter ends

Winter Quarter 1996-97

Sept.	9	Mon.	Completed applications and all transcripts for new international students due in Admissions Office
Oct.	21	Mon.	Completed applications and transcripts for new graduate students due in Graduate School Office
	21	Mon.	Applications for undergraduate admission or readmission due in Admissions Office
Nov.	10	Sun.	Residence Halls open, 9:00 a.m.
	10	Sun.	Food Service opens, night meal
	10	Sun.	English Placement Exam, 9:00 a.m.
	10	Sun.	Reading Placement Exam, 11:00 a.m.
	10	Sun.	Math Placement Exam, 1:00 p.m.
	10	Sun.	Foreign Language Placement Exam, 3:30 p.m.
	10	Sun.	Mini-orientation (first-time students) - 4:00 p.m.
	11	Mon.	Winter Quarter 1995-96 begins
	11-12	Mon.-Tues.	Registration for all students who have not early registered and fee payment
	13	Wed.	Classes begin
	27	Wed.	Thanksgiving Holidays begin, noon
Dec.	2	Mon.	Thanksgiving Holidays end, 8:00 a.m.
	20	Fri.	Christmas Holidays begin, end of classes
	20	Fri.	Residence Halls close, 7:00 p.m.
	20	Fri.	Food Service closes, after night meal
Jan.	5 (1997)	Sun.	Residence Halls open, 1:00 p.m.
	5	Sun.	Food Service opens, night meal
	6	Mon.	Christmas Holidays end, 8:00 a.m.
	20	Mon.	Martin L. King, Jr. Holiday (All offices closed, no classes)
	21	Tues.	Classes resume and all offices open, 8:00 a.m.
Feb.	7	Fri.	Last day of classes
	7	Fri.	Food Service closes, after night meal
	8	Sat.	Residence Halls close, 12:00 noon
	13	Thurs.	Commencement Exercises - 2:00 p.m., Thomas Assembly Center
	13	Thurs.	Winter Quarter ends

Spring Quarter 1997

Dec.	19 (1996)	Thurs.	Completed applications and all transcripts for new international students due in Admissions Office
Feb.	3	Mon.	Completed applications and transcripts for new graduate students due in Graduate School Office
	3	Mon.	Applications for undergraduate admission or readmission due in Admissions Office
	23	Sun.	Residence Halls open, 9:00 a.m.
	23	Sun.	Food Service opens, night meal
	23	Mon.	English Placement Exam, 9:00 a.m.
	23	Mon.	Reading Placement Exam, 11:00 a.m.
	23	Mon.	Math Placement Exam, 1:00 p.m.
	23	Mon.	Foreign Language Placement Exam, 3:30 p.m.
	23	Mon.	Mini-orientation (first-time students), 4:00 p.m.
	24	Mon.	Spring Quarter begins
	24-25	Mon.-Tues.	Registration for all students who have not early registered and fee payment
	26	Wed.	Classes begin
Mar.	27	Thurs.	Easter Holidays begin, end of classes
Apr.	1	Tues.	Easter Holidays end, 8:00 a.m.
May	9	Fri.	Last day of classes
	9	Fri	Food Service closes, after night meal
	10	Sat.	Commencement Exercises - 2:00 p.m., Thomas Assembly Center
	10	Sat.	Spring Quarter ends
	11	Sun.	Residence Halls close, 12:00 noon

Directory

Officers of the Administration

Daniel D. Reneau, B.S., M.S., Ph.D.(1967) . . . . . President and Professor
Kenneth W. Rea, B.A., M.A., Ph.D. (1968) . . . . . Vice President for Academic Affairs
George W. Byrnside, B.S. (1960) . . . . . Vice President for Administrative Affairs
Owen Jean Hall, B.A., M.A., ED.D. (1988) . . . . . Vice President for Student and Alumni Affairs

John T. Emery, B.S.B.A., M.B.A., Ph.D. (1994) . . . . . Dean, College of Administration and Business
John C. Trisler, B.S., Ph. D. (1959) . . . . . Dean, College of Arts and Sciences
Jerry W. Andrews, B.S., M.S., Ed.D. (1982) . . . . . Dean, College of Education
Barry A. Benedict, B.S., M.S., Ph.D. (1986) . . . . . Dean, College of Engineering
Jeanne M. Gilley, B.A., M.S.E., Ph.D. (1973) . . . . . Dean, College of Human Ecology & College of Life Sciences

Whom to Contact at Louisiana Tech For:

Academic Records, Transcripts and Registration	Office of the Registrar 318/257-2176
Admissions (Undergraduate) Orientation, and High School Relations	Division of Admissions, Basic and Career Studies 318/257-3036
Admissions (Graduate)	The Graduate School 318/257-2924
Continuing Education	Office of Extramural Programs 318/251-4130
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
International Student Information	Counseling Center 318/257-4321
Graduate School	The Graduate School 318/257-2924
Career Center	Director of Career Center 318/257-4336
Student Activities and Services	Student Center 318/257-3479
Veterans Information	Office of the Registrar 318/257-2176

STATEMENT OF PURPOSE

Values and Beliefs

Inherent in any organization such as a university is a basic philosophy of operation. This philosophy leads to a system of values and beliefs that the university develops over time. These values and beliefs themselves then become the guiding principles to be followed in the decisions and actions of the institution. Louisiana Tech University is guided by the following values and beliefs:

1. The single most important function of Louisiana Tech University is the education of students with particular emphasis in engineering, science, business, and technology.
2. An understanding and appreciation of the arts, the humanities, the sciences, and the professional fields are vital to the education of the total person.
3. Competent and dedicated faculty, staff, and administration are essential ingredients of a quality university.
4. Academically qualified, committed students are a key element of an outstanding university.
5. Personal and frequent interaction between faculty and students enhances the educational process.
6. A wholesome, ethical, and intellectually stimulating environment fosters critical thinking, problem solving, learning, and maturity.
7. The expansion of knowledge through theoretical and applied research is a major responsibility of the University.
8. The University is responsible for extending educational opportunities beyond the main campus, outside the traditional curricula, and to non-traditional students.

Purpose

Therefore, Louisiana Tech University seeks to provide excellent educational opportunities for students within the State of Louisiana and from the region, nation, and foreign countries. The University is committed to providing strong baccalaureate programs in a broad range of studies in the liberal and fine arts, in pure and applied sciences, in agriculture, in human ecology, and in professional areas including architecture, business, engineering and teacher preparation. The University's expanding commitment to research and graduate-level education is reflected in masters degrees offered in the arts and sciences, business, engineering, and human ecology, and in masters and specialists programs in teacher and school service personnel preparation, and in doctoral programs in selected areas. The mission of the University is implemented through instruction, research, and service:

1. The University emphasizes quality academic instruction and promotes a high degree of interaction among students, faculty, and the University community.
2. The University seeks, where appropriate, a level of research activity consistent with national prominence. The acquisition and utilization of knowledge through both theoretical and applied research is stressed.
3. The University, as a public-assisted institution, recognizes its responsibility to make available knowledge, expertise, and resources to its various constituencies.

UNDERGRADUATE MAJORS AND CONCENTRATIONS

DEPARTMENT (UNIT)	MAJOR	CONCENTRATION WITHIN THE MAJOR	DEGREE
College of Administration and Business			
Accounting	Accounting		Bachelor of Science
Business Analysis & Communication	Business Administration	(1) Business Analysis (2) General Business Administration (3) Management Information Systems	Bachelor of Science
	Business Technology (2-yr.)		Associate of Science
Economics & Finance	Business Economics		Bachelor of Science
	Finance		Bachelor of Science
Marketing & Management	Management	(1) Business Management & Entrepreneurship (2) Human Resources Management (3) Pre-Law (4) Production/Operations Management	Bachelor of Science
	Marketing		Bachelor of Science
College of Arts and Sciences	General Studies (2-yr. and 4-yr.)		Associate of General Studies Bachelor of General Studies
Architecture, School of	Architecture (5-yr.)		Bachelor of Architecture
		Interior Design	Bachelor of Fine Arts
Art, School of	Art	Graphic Design	Bachelor of Fine Arts
		Photography	Bachelor of Fine Arts
		Studio	Bachelor of Fine Arts
Chemistry	Chemistry		Bachelor of Science
		Pre-Dentistry* Pre-Medicine* Pre-Optometry Pre-Pharmacy	
English	English		Bachelor of Arts
		Technical Writing	
Foreign Languages	French		Bachelor of Arts
	Spanish		Bachelor of Arts
History	History		Bachelor of Arts
Journalism	Journalism		Bachelor of Arts
Mathematics & Statistics	Mathematics		Bachelor of Science

DEPARTMENT (UNIT)	MAJOR	CONCENTRATION WITHIN THE MAJOR	DEGREE
Performing Arts, School of	Music		Bachelor of Fine Arts
			Bachelor of Arts
	Theatre (see Speech Department)		
Physics	Physics		Bachelor of Science
Professional Aviation	Professional Aviation		Bachelor of Science
Social Sciences	Geography		Bachelor of Arts
	Political Science		Bachelor of Arts
		Pre-Law	
	Sociology		Bachelor of Arts
Speech	Speech	Speech Communication	Bachelor of Arts
		Theatre	Bachelor of Arts
	Preprofessional Speech Language Pathology		Bachelor of Arts
College of Education			
Behavioral Sciences	Psychology		Bachelor of Arts
	Special Education		Bachelor of Arts
Health & Physical Education	Health & Physical Education	Health & Physical Education (Teacher Certification)	Bachelor of Science
	Fitness/Wellness Management	Fitness & Wellness Management (No Teacher Certification)	Bachelor of Science
Curriculum, Instruction & Leadership	Art Education (K-12 certification)		Bachelor of Arts
	Elementary Education	(1) Kindergarten - Grade 4 (2) Grades 1-8 (3) Library Science (4) Special Education	Bachelor of Science
	French Education		Bachelor of Arts
	Music Education (K-12 certification)		Bachelor of Arts
	Spanish Education		Bachelor of Arts
	Speech Language, Hearing Therapy		Bachelor of Arts
	Secondary Education	(1) Business Education /Shorthand (2) Business Education /Business Administration (3) English Education (4) Mathematics Education (5) Science Education (6) Social Studies Education (7) Speech Education (8) Vocational Agricultural Education	Bachelor of Science

DEPARTMENT (UNIT)	MAJOR	CONCENTRATION WITHIN THE MAJOR	DEGREE
College of Engineering			
Biomedical Engineering	Biomedical Engineering		Bachelor of Science
		Pre-Dentistry* Pre-Medicine*	
Chemical Engineering	Chemical Engineering		Bachelor of Science
Civil Engineering	Civil Engineering		Bachelor of Science
	Construction Engineering Technology		Bachelor of Science
	Geosciences		Bachelor of Science
Computer Science	Computer Science		Bachelor of Science
Electrical Engineering	Electrical Engineering		Bachelor of Science
	Electrical Engineering Technology		Bachelor of Science
Mechanical & Industrial Engineering	Mechanical Engineering		Bachelor of Science
	Industrial Engineering		Bachelor of Science
College of Human Ecology			
Merchandising & Consumer Affairs	Merchandising & Consumer Affairs	(1) Merchandising (2) Consumer Affairs	Bachelor of Arts
Family, Infancy, & Early Childhood Education	Family, Infancy, & Early Childhood Education	(1) Early Childhood Education (2) Child Life (3) Family Studies (4) Family & Consumer Sciences Education	Bachelor of Science
Nutrition and Dietetics	Nutrition & Dietetics		Bachelor of Science
College of Life Sciences			
Agricultural Sciences, Technology & Education	Agricultural Business		Bachelor of Science
	Animal Science	(1) Dairy Production (2) Equine (3) Livestock Production (4) Pre-Veterinary Medicine	Bachelor of Science
	Plant Sciences	(1) Agronomy (2) Horticulture	Bachelor of Science
	Environmental Science	(1) Earth & Agricultural Sciences (2) Biological Sciences (3) Environmental & Occupational Health Sciences	Bachelor of Sciences

DEPARTMENT (UNIT)	MAJOR	CONCENTRATION WITHIN THE MAJOR	DEGREE
Biological Sciences	Biological Sciences	(1) Animal Biology (2) Molecular Biology (3) Plant Biology	Bachelor of Science
		Pre-Medicine* Pre-Dentistry*	
	Wildlife Sciences	(1) Aquatic Ecosystems (2) Terrestrial Ecosystems (3) Pre-Graduate School	Bachelor of Science
Clinical Laboratory Science and Bacteriology	Medical Technology		Bachelor of Science
		Allied Health Pre-Professional Areas Pre-Medicine* Pre-Dentistry*	
School of Forestry	Forestry	(1) Wildlife (2) Business (3) Management (4) Natural Resources Management	Bachelor of Science
Health Information Management	Health Information Administration (4-yr.)		Bachelor of Science
	Health Information Technology (2-yr.)		Associate of Science
Division of Nursing	RN Program (2-yr.)		Associate of Science

*Pre-Dental and Pre-Medical requirements are met through the curricula of each of the following departments: Biological Sciences, Biomedical Engineering, Chemistry, and Clinical Laboratory Science and Bacteriology.

GRADUATE DEGREES

DEPARTMENT (UNIT)	MAJOR	DEGREE
Graduate School	Computational Analysis and Modeling	Ph.D. in Computational Analysis & Modeling
College of Administration and Business	**Interdisciplinary with Majors in:** Accounting Finance Management Marketing Quantitative Analysis	Doctor of Business Administration (DBA)
	Interdisciplinary with Concentrations in: Accounting Economics Finance General Business Management Marketing Quantitative Analysis	Master of Business Administration (MBA)
	Accounting	Master of Professional Accountancy (MPA)
College of Arts and Sciences		
Architecture, School of	Interior Design	Master of Fine Arts
Art, School of	Art Graphic Design Photography Studio	Master of Fine Arts
Chemistry	Chemistry	Master of Science
English	English	Master of Arts
History	History	Master of Arts
Mathematics & Statistics	Mathematics	Master of Science
Physics	Physics	Master of Science
Speech	Speech Communication Speech-Language Pathology & Audiology Theatre	Master of Arts
College of Education		
Behavioral Sciences	Counseling	Master of Arts (General, Elementary, Secondary Counseling)
		Specialist in Counseling
		Ph.D. in Counseling Psychology
	Industrial/Organizational Psychology	Master of Arts
	Educational Psychology	Master of Arts
Health & Physical Education	Health & Physical Education	Master of Science
		Master of Education (5th Year Program)

DEPARTMENT (UNIT)	MAJOR	DEGREE
Curriculum, Instruction & Leadership	Art Education Business Education Elementary Education English Education Foreign Language Education Mathematics Education Music Education Social Studies Education Science Education Speech Education Vocational Agricultural Education	Master of Education (5th-Year Program)
	Curriculum & Instruction	Master of Science in Curriculum & Instruction
		Ed.D. In Curriculum and Instruction
	Reading	Specialist in Education
	Educational Leadership	Ed.D. in Educational Leadership
College of Engineering		
All engineering areas except Biomedical Engineering	Interdisciplinary Program	Doctor of Engineering
Biomedical Engineering	Biomedical Engineering	Ph.D. in Biomedical Engineering
		Master of Science
Interdisciplinary	Manufacturing Systems Engineering Chemical Engineering Computer Science Electrical Engineering Mechanical & Industrial Engineering	Master of Science
Chemical Engineering	Chemical Engineering	Master of Science
Civil Engineering	Civil Engineering	Master of Science
Computer Science	Computer Science	Master of Science
Electrical Engineering	Electrical Engineering	Master of Science
Mechanical & Industrial Engineering	Industrial Engineering	Master of Science
	Mechanical Engineering	Master of Science
College of Human Ecology		
	Human Ecology Education Consumer Affairs Early Childhood Administration Early Childhood Education Family Life Education Human Development & Family Studies Family & Consumer Sciences Education	Master of Science
	Nutrition and Dietetics Clinical Dietetics Community Dietetics	Master of Science
College of Life Sciences		
Biological Sciences	Biological Sciences	Master of Science

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. There was a total of 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 those additional responsibilities; in 1970, the school's name was changed to Louisiana Tech University.

Since 1921, the University has prospered. Enrollment approximates 10,000 students, and the physical plant has grown to over 130 buildings. There are approximately 255 acres on the main campus, 472 acres at the demonstration farm, 94 acres of forest land in Webster parish, 200 acres of forest land in Winn Parish, about 170 acres a few miles west of Ruston, five acres on Lake D'Arbonne, and 43.7 acres two miles west of the main campus. In addition, Tech leases four acres for a Forestry Camp on Corney Lake and 149.77 acres of farm and pasture land for the animal production units.

The focal point of the campus is the Quadrangle, the center of which is a granite fountain named "The Lady of the Mist." Prescott Memorial Library (named for the school's first president), Wyly 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 core buildings around the Quadrangle.

The Centennial Plaza was constructed in 1995 and funded by student-assessed fees. The focal points of the Plaza area are the belltower and the alumni walkway made up of 63,000 engraved bricks representing all Tech graduates.

Accreditation

Louisiana Tech University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award associate, baccalaureate, masters, and doctoral degrees. 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 Computing Science Accreditation Board, the Council on Aviation Accreditation, the National Association of Schools of Art and Design, the American Speech-Language-Hearing Association, the National Association of Schools of Music, the National Council for Accreditation of Teacher Education, the National Academy of Early Childhood Programs, the National Architectural Accrediting Board, the American Dietetics Association, the National League for Nursing, the Foundation for Interior Design Education Research, the Society of American Foresters, and the Committee on Allied Health Education and Accreditation (CAHEA) of the American Medical Association in cooperation with the Council on Education of the American Health Information Management Association.

Equal Opportunity Policies

Louisiana Tech University adheres to the equal opportunity provisions of federal civil rights laws and regulations that are applicable to this agency. Therefore, no one will be discriminated against on the basis of race, color, national origin, age (Title VI of the Civil Rights Act of 1964); sex (Title IX of the Education Amendments of 1972); or disability (Section 504 of the Rehabilitation Act of 1973) in the pursuit of educational goals and objectives and in the administration of personnel policies and procedures.

Admissions

Louisiana Tech University assures equal opportunity for all qualified persons regardless of race, creed, sex, color, religion, sex, physical or mental handicap, national origin, age, marital status, or veteran's status in admission to the University.

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 Student Financial Aid

The Division of Student Financial Aid makes every effort to assist all students who require financial assistance to pursue their college career. The Division of Student Financial Aid is dedicated to the principle that any student who desires a college education should not be denied that opportunity because of lack of funds necessary to meet college costs.

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 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.

Message to Students

Louisiana Tech University is committed to providing a quality educational experience for students both within and outside the classroom. A high degree of interaction among students, faculty, and the University community is desired. Students provide an important voice in University decision making. The large number of committees having student members is an indicator of the importance of the students' role in decision making. Some of the committees having student members are as follows: Administrative Council, Administrative Review Board, Athletics Council, Behavioral Standards Committee, College/Department Curriculum Committees, Fee Committee, Graduate Council, Instructional Policies Committee, Library Advisory Committee, Parking and Traffic Committee, Radiation Committee, Research Council, Student Organizations Committee, University Multicultural Committee, University Student Health Council, and University Tour Committee.

Louisiana Tech University is required by accrediting agencies to evaluate the effectiveness of its academic programs and student services. Student participation is required through opinion surveys and standardized tests; e.g., student opinion survey, alumni survey, standardized test for general education, standardized test for major field evaluation, etc.

Undergraduate Admissions

Louisiana Tech University operates on a quarter calendar granting credit in semester hours. Qualified applicants may initiate their enrollment at the beginning of any quarter.

Requests for information and application forms for undergraduate admission and readmission should be directed to:

Admissions Office
Box 3178 Tech Station
Ruston, LA 71272

Application packets are routinely sent to students who have scores on the American College Test (ACT) or Scholastic Aptitude Test (SAT) sent to the University. Applications are also available at most high schools.

Arrangements for admission, housing, and need-based financial aid are made separately through the Admissions Office, Housing Office, and Financial Aid Office, respectively. Filing an application for admission does not entitle an applicant to University housing or financial aid; nor is the filing of a housing application, the assignment to a room, or the award of financial aid a commitment of admission to the University.

Applicants enrolled at the main campus must submit a medical history form prior to enrollment. A nonrefundable application fee of $20 must accompany the application for admission. International students should submit a $30 application fee. All persons previously banned for disciplinary reasons or misconduct or criminal activities cannot register without the specific approval of the Vice President for Student Affairs.

Admission Requirements and Procedures

All students are encouraged to apply for admission. Louisiana Tech University may admit students not meeting all stated requirements. In such cases, the admission decision will be affected by the student's potential for degree completion and the need to enhance the university's demographically diverse student population. Some factors to be considered may include age, experience, ethnic background, and creative talent.

All high school grade-point averages will be calculated by the Admissions Office under uniform policies on a 4.00 scale, considering only those courses which meet the University's course requirement. For scholarships, the University may take into consideration special designation

on high school transcripts, such as honors and Advanced Placement courses.

Freshmen

Applicants for freshman admission, and all applicants who have earned fewer than 24 semester hours of college credit must show proof of graduation from an accredited high school or have successfully completed the General Education Development Test (GED). Students who meet one of the following requirements may be admitted:

1. High school grade point average of 2.00/4.00 on the courses listed below. **OR**
2. High school rank in the upper 50 percent of the graduation class. **OR**
3. ACT composite of at least 22 or 920 SAT.

The following represent the high school courses normally required for admission:

SUBJECTS	UNITS	
English	4	Courses emphasizing grammar, composition and literature (English I, II, III, IV)
Mathematics	3	Two units of algebra; one unit of geometry or a higher level of mathematics for which algebra is a prerequisite
Social Studies	3	One unit must be American History
Science	3	Chemistry, physics, and biology preferred
Electives	4 1/2	Recommended from: foreign languages, social studies, science, mathematics, speech, advanced fine arts, and computer literacy. No more than three elective units may be in vocational subjects.
Total	17 1/2	

Students with deficiencies may be admitted provisionally and allowed to address those deficiencies by successfully completing specified courses (with a grade of "C" or better) prior to being granted admission. Such students should enroll in courses offering expanded tutorial assistance in the summer quarter following high school graduation. Freshman applicants who intend to enroll in the fall must apply by July 1, have ACT or SAT scores and high school transcripts on file. All freshmen must participate in the Orientation program. This program includes testing for placement, the opportunity to meet with a faculty advisor, and completion of registration for the fall. Announcements of dates and other information are sent to applicants.

Transfer Admission

Students desiring to transfer to Louisiana Tech University with less than 24 semester hours of coursework must meet the same requirements as an entering freshman and be eligible to re-enter the institution from which he/she is transferring. Students with 24 hours or more must have a 2.0/4.0 grade point average on all transfer work. Students transferring should submit an application and a complete, official transcript from each college attended, whether credit was earned or transferrable. Transcripts must be mailed directly from the college/university to Louisiana Tech. Students who fail to acknowledge attendance at any college or university in which they have been registered are subject to having their admission canceled or, if enrolled, to being dismissed from Louisiana Tech University. Evaluations concerning probation, suspension, grades, grade point average, hours pursued and earned are based on Tech standards regardless of prior determinations at the other institutions attended.

No student will be admitted if under scholastic or disciplinary suspension from another college or university. A suspended student will not be considered for admission until the time interval of suspension has elapsed; where such interval is not clearly defined, it will equal a period comparable to rules in place at Tech.

Provisional status may be granted prior to scheduled registration dates on an individual basis. Provisional status is based on incomplete or unofficial transcripts and if the required transcripts are not received by the end of the first quarter, the student will not be permitted to attend subsequent quarters. When the required transcripts are submitted and if the student is determined to have been ineligible, no credit will be awarded for the initial quarter. No credit earned while under suspension from another institution will be accepted toward a degree at Tech. Official Louisiana Tech academic transcripts will not be provided to any student with incomplete admissions records.

Accreditation status of transfer institutions is confirmed through the publications Transfer Credit Practices of Designated Educational Institutions and Accredited Institutions of Postsecondary Education. Transfer coursework is normally posted directly from transcripts from institutions accredited by the following associations:

- *Middle States Association of Colleges and Schools
- *Northwest Association of Schools and Colleges
- *North Central Association of Colleges and Schools
- *New England Association of Schools and Colleges, Inc./Commission on Institutions of Higher Education
- *Southern Association of Colleges and Schools/Commission on Colleges
- *Western Association of Schools and Colleges

While all transfer coursework is posted, the choice of specific courses for the chosen curriculum is made by the academic dean/department head.

Tech computes the grade point average (GPA) on all courses taken, including repeated courses, courses with incomplete grades, and those with any other grades, except grades of "W", "WA", "WB", "WC", "WD", and "No Credit". Under this system, a grade of "A" equals four quality points, "B" = three, "C" = two, "D" = one, and "F" = 0. The symbols "+" and "-" are disregarded.

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

Early and Concurrent Admission

High school students may be considered for **Early Admission** to the University if the following requirements

are met; an overall academic average of 3.0 ("B") or better on all work pursued during three years (six semesters) of high school; a minimum ACT composite score of 24 (1010 SAT V+M) submitted prior to June 1; and recommendation by the high school principal. The student may be enrolled full-time or part-time. Upon earning a minimum of 24 semester hours at the University, the student will be issued a diploma by the high school last attended.

A student may be eligible for **Concurrent Admission** to the University if the following requirements are met; an overall academic average of 3.0 ("B") or better on all subjects taken during the previous two years; a minimum ACT composite score of 24 (1010 SAT V+M) submitted to the University or certification as a gifted student as set forth in Bulletin 1508, Pupil Appraisal Handbook; and recommendation by the high school principal. The student may enroll in one University course per quarter. Upon admission to the University as a freshman, the credits earned in this program may be used to satisfy degree requirements.

Forms for these programs can be obtained through the Admissions Office.

Summer Enrichment Program for High School Students

The 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.

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

Summer Scholars Program

Students with exceptional academic records may participate in Tech's **Summer Scholars Program**, which allows students who will be entering freshmen in the Fall to get an early start by enrolling in the Summer Quarter. Special scholarships are available for qualifying students.

Readmission Students

Applicants for readmission to Louisiana Tech must complete an application for admission when the student has not been enrolled for one or more quarters (except for the summer quarter).

Readmission students who have attended another college/university since they were last at Tech must submit an official transcript from each college/university. Transcripts must be mailed directly from the college/university to Louisiana Tech. If the required transcripts are not received by the end of the first readmitted quarter, the student will not be permitted to attend subsequent quarters. If the required transcripts are submitted and the student is determined to have been ineligible for readmission, no credit will be awarded for that quarter. Official Louisiana Tech academic transcripts will not be provided to any student with incomplete readmission records.

International Admission

All admitted students must have sufficient knowledge of the English language to benefit from a program of study. All undergraduates whose first language is not English must take the Test of English as a Foreign Language (TOEFL)). Undergraduate applicants who score 500 or more on the examination, and who meet all other admission qualifications, may proceed with an academic program.

Applicants from foreign countries must meet the guidelines set forth in Louisiana Tech's "International Admission" publication. Please contact the Admissions Office for a copy.

Visiting/Special Admission

Admission under these criteria is for a particular program for one quarter. The student is not regularly admitted to the University nor approved to pursue a curriculum. No transcripts are required. Transferable credit will be awarded. If, at a future date, the student wishes to regularly enroll in the University, the regular admissions procedures and requirements must be followed.

Test Scores and Transcripts

Applicants may submit ACT or SAT scores or both. Although scores are self-reported on the application, official notice of receipt of scores must be received directly from the testing agency or on an official transcript from the high school. Scholarship applicants must take the SAT or ACT at least by December of the senior year.

High school and college transcripts must be official documents bearing the stamp or seal of the issuing institution. All high school transcripts must show a graduation date, grade point average, and rank in class. Freshman applicants may submit a six or seven-semester transcript for admission and scholarship decision. A final transcript must be received prior to enrollment.

Honors Program

The Honors Program at Louisiana Tech University has been established to meet the needs of students of exceptional ability and motivation. Honors Scholars may take special honors classes which are usually small and taught by some of the best and most innovative faculty at Tech. Small classes and challenging professors provide greater interaction between students and faculty and among the students themselves. They also make it possible for professors and students to explore topics in greater depth or at a higher level of sophistication than in ordinary classes.

In addition to special classes, Honors Scholars enjoy a number of privileges including priority registration and participation in social, academic, and cultural events designed specifically for them. Honors Scholars may also work toward formal recognition of superior achievement in the form of Junior Division Honors, Senior Division Honors, and University Honors.

In general, students with excellent academic records are invited to apply for admission to the Honors Program. To apply, entering or continuing freshmen must have a minimum score of 26 on the ACT, or equivalent SAT score, or have graduated in the upper 10 percent of their high school class. Continuing or transfer students above

the rank of freshman may apply with a cumulative GPA of 3.3 or better.

For more information, contact: Director, Honors Program, P. O. Box 10078, Louisiana Tech University, Ruston, Louisiana 71272.

Louisiana Tech University Immunization Policy

Louisiana state law (Act 1047), Louisiana Tech University requires all new students born after December 31, 1956, to provide proof of immunization against MMR and Td. Forms for documenting immunization or establishing an exemption to this requirement are available from the Office of Admissions. Proof of immunity includes documentation of:

-two measles vaccines administered after January 1, 1968, one of which must have given on or after the first birthday.

-a mumps and rubella vaccine.

-a Tetanus/Diphtheria combination within the past 10 years.

In the event of an outbreak of measles, mumps, or rubella, students who have not provided documentation of immunity will be excluded from attendance of campus activities, including classes, until the appropriate disease incubation period has expired.

English, Reading, and Mathematics Placement Examinations

A student who has an English ACT score of 18 or less will be required to take a diagnostic test in English, and a student who has a reading ACT score of 18 or less will be required to take a diagnostic test in reading.

Each student with a Math ACT score of 0-19 or with no ACT scores on record at Louisiana Tech will be eligible to enroll in Math 099 without taking a placement exam.

If such a student desires to bypass Math 099, Placement Exam A will be required. A satisfactory score on Exam A will place the student in Math 110 (College Algebra). A student who passes Exam A with a superior score and who desires to bypass Math 110 can request permission through the Mathematics Department to take Exam B.

Each student with a Math ACT score of 20-25 will be eligible to enroll in Math 110 without taking a placement exam.

If such a student desires to bypass Math 110, Placement Exam B will be required. A satisfactory score on Exam B will place the student in Math 111 (Precalculus Algebra) or Math 125 (Finite Mathematics). A student who passes Exam B with a superior score and who desires to bypass Math 111 to take Math 112 or Calculus (Math 220, Math 222, or Math 230) can request permission through the Mathematics Department to take Exam C.

Each student with a Math ACT score of 26 or higher will be eligible to enroll in Math 111 (Precalculus Algebra), Math 125 (Finite Mathematics), or Math 110 (College Algebra) without taking a placement exam.

If such a student desires to bypass Math 111 or Math 125, Placement Exam C will be required. A satisfactory score at the proper level on Exam C will be required. A satisfactory score at the proper level on Exam C will place the student in either Math 112 (College Trigonometry) or Calculus (Math 220, Math 222, or Math 230).

Transfer students must satisfy the same placement requirements as beginning freshmen with the following exceptions:

1. If college credit has been earned for the equivalent of Math 110 (College Algebra), the student will not be required to take Placement Exam A or Placement Exam B. The student will be eligible to enroll in any course with Math 110 as the only math prerequisite.
2. If college credit has been earned for the equivalent of Math 111 (Precalculus Algebra), the student will not be required to take any placement exam. The student will be eligible to enroll in any course with Math 111 as the only prerequisite.
3. If college credit has been earned for the equivalent of both Math 111 (Precalculus Algebra) and Math 112 (College Trigonometry), the student will not be required to take any placement exam. The student will be eligible to enroll in any course with Math 112 and/or Math 111 as the only math prerequisites.

All three examinations are administered at the time of admission before students begin class scheduling.

Orientation

Orientation programs are held under the direction of the Division of Admissions, Basic and Career Studies.

New freshmen who have been accepted for the Fall Quarter are required to attend one of four 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. Two special sessions for transfer students are also conducted.

A Mini-Orientation is held on the day preceding the beginning of each new quarter for all new students. Students are given information to assist them with registration and to enhance their college experience.

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

University Seminar

University Seminar, a one-credit hour course for entering freshmen, is offered each fall quarter. The course, designed to orient the freshman student to the university environment and provide information about available campus resources, has proved beneficial to students and to the university. Course sections are taught by instructors and administrators from all segments of the university. Instructors present information concerning campus resources, time management, and academic regulations. Student services staff present informative lectures on a variety of topics including college health, stress, safety, campus involvement, and career development.

Enrollment, Schedule Changes, and Data Update Information

Semester Hour/Quarter Calendar

Although Louisiana Tech is on a quarter calendar, the unit of credit granted 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 as 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 (75 minute periods); third, credit in semester hours.

Semester Hour Load

A **normal undergraduate student load** is that amount of course work required by the curriculum in which the student is registered. The maximum load allowed without special permission is 12 semester hours including the summer quarter. Six semester hours is maximum for a summer 6 weeks session. Any schedule exceeding 12 semester hours must be approved in writing by the student's dean on the registration form or the schedule change form. Courses pursued in excess of the allowed limits without approval will be invalidated upon discovery. Correspondence courses and concurrent enrollments at other institutions are considered as part of this load and must also be approved by the dean.

A degree candidate or a student with a "B" average (3.0), both overall and in the preceding quarter, may be permitted to carry a maximum of 14 semester hours during a quarter.

As for a minimum load, full-time students must be registered for 8 or more hours. A degree candidate may carry only the courses required for graduation at the end of the quarter and still be considered a full-time student. A graduate student is full-time with 6 graduate hours and half time with three graduate hours. Credit examinations and classes taken for audit do not count in a students' load.

Course Numbers

Course numbers have been standardized. Developmental education courses are numbered 099 and are not acceptable for degree credit. 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 a 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 and 600 are open only to graduate students.

Registration and Advisement

Students may attend class only after completion of registration, which includes payment of tuition and fees. Registration days and procedures are announced in this Bulletin and also in the *Schedule of Classes* each quarter. Students who are currently enrolled are expected to register for the next quarter during the "early registration" period. Currently enrolled students who register after early registration are assessed a late registration fee.

New students and readmitted students register during the "Final" registration period (before the first class day).

Late registration is allowed during the first three regular class days. A late registration fee is assessed during this period. Students who have registered may also add or drop classes during these three days.

Students who are selected for participation in forensics, band, choir, chorus, orchestra, and private music lessons after the final day to add a class may still be allowed to add the activity by obtaining their dean's permission. Such adds will only be considered during the first four weeks of the quarter.

Department heads or appointed faculty members advise during the scheduled registration advisement period; however, the student should be well acquainted with his/her particular curriculum, as well as any special registration requirements of his/her department or college.

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, P. O. Box 3178, Ruston, LA 71272.

Questions concerning tuition and fees should be directed to the University Comptroller. All tuition and fees must be paid by the published deadlines to avoid unenrollment. Student financial aid and scholarships are available for qualified students. Application for any of these resources should be well in advance of the time that tuition and fees will be due.

Class Attendance

Louisiana Tech has adopted CLASS ATTENDANCE regulations in consonance with the policy of the University of Louisiana System.

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 will also accept an official university excuse. The Registrar's Office does not issue excuses for absences.

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.

Dropping a Course

To drop a course a student must have the consent of his/her department head or adviser on the proper drop/add form and the form must be processed through the Registrar's Office. The "W" grade is given when a student drops an individual class after the final date for registration (3rd class day) has passed and before the end of the first eight weeks of a quarter. After that date students may not drop courses. 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). 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 interest 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."

Resigning From the University

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 to the Registrar's Office. The I.D. card should be turned in to the Food Service Office on the 2nd Floor of the Student Center. A resignation is not official until the required card is on file in the Registrar's Office. 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 eight weeks of the quarter, the grade of "W" will be assigned. A grade of "F" for each class will be recorded for 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.

Appeal Process for Course/Drop Resignation After End of 8th Week

Approval of an appeal for dropping a course or resigning may be granted by the student's academic dean only for documented reason which prohibit the completion of the course(s). With the dean's approval a grade of "W" will be assigned the course(s). Examples of appealable cases are: illness/injury to student, death in student's immediate family, natural disaster, military duty. Extraordinary cases do not include dissatisfaction with an anticipated grade or a decision to change a major.

Repeated Courses

All attempts at a repeated course will be computed into the overall grade point average. For a course which can not be repeated for credit, only the last attempt is computed into the total hours **earned.** To repeat a course in which credit has already been earned, the student must have the consent of his/her department head. Students who earn an "F" in a course must repeat the course with a passing grade in order to earn credit. (See "Graduation Requirements" and "Minimum 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 last attempt of a repeated course is considered as the final grade.

Auditing a Course

To audit a class 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 class must be obtained from the HPE department head. A student auditing one or more classes must follow the regular registration procedure and enter "audit" on the registration form as type of credit desired. 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.

Changing from One College to Another

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. The normal time to process a change is during registration. The registration form contains a block to authorize a change of college and major. Changes processed in early registration take effect immediately.

Change of Address

At the time of registration, each quarter, a student is required to review 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, the change must be immediately reported in writing to the Registrar's Office. This can be reported on the Registration Form.

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.

Veteran Certification

Louisiana Tech University provides a service for students eligible to receive veteran's educational benefits. For more information, students may contact the Veteran's Certifying Official in the Office of the Registrar.

Emergency Announcements Through the Media

It can be assumed that Louisiana Tech is in session in accordance with the published calendar, schedules, and bulletins unless otherwise announced through the news media as authorized by the President or his designee. Such announcements will state one of the following:

Tech is closed, which means that no classes are being held and only certain designated Building and Grounds maintenance staff is on duty.

Classes are dismissed. All offices are open. All employees other than nine-month faculty are on duty.

Credit by Examination and Other Non-University Sources

While students are already benefiting from more rapid degree completion in Louisiana Tech's year-round quarter calendar 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 requirement as to 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. Credit by all types of examinations collectively may not exceed sixty (60) semester hours.

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

Credit Through The College Board Advanced Placement Program

The University recognizes college level courses taken in secondary schools under the College Board Advanced Placement Program. Students who have completed these tests should have their scores sent to the Admissions Office. Students may earn up to 30 semester credit hours through the AP Program.

The College Level Examination Program (CLEP) Subject Examinations

A student may gain college credit in a number of subjects by scoring the recommended score for credit at Louisiana Tech. The CLEP is administered nationally by Educational Testing Service (ETS). The examination may be taken Wednesday of the third week of each month at Louisiana Tech University upon application to the Coordinator of the Testing 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 Testing Center, Keeny Hall 310. The student's academic dean must approve the acceptability of the credit toward a degree program. A student will not be allowed to receive credit based upon the CLEP subject exam if he/she has attempted and passed, or failed the course.

Credit by means of this type is limited to 30 semester hours. Applications for CLEP subject examinations may be obtained from any test center participating in the program.

Louisiana Tech Credit Examinations

"Credit examinations" are administered in some subject areas for the benefit of the student who believes he/she has already attained the level of knowledge required in the course(s).

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

1. Students may register for credit by examination in any approved course, but only during regular registration periods. No examination can be given to a student who has not properly registered for the examination. Permission to take a credit examination in a given course will be denied those students who have previously attempted the course for credit, those who have earned credit in a higher sequence course, or those who did not receive approval from the department head responsible for the course.

2. Each credit by exam will have a section number of "00" and will be entered on the student's registration form or added during the "add period." Regular university fees will apply for billing purposes.

3. The student's registration record will reflect the credit by exam course(s) for which the student registered: these courses will not, however, be added into the total semester hour load of the student for determining "full-time" status, but will be counted for the purpose of determining fees.

4. Examinations will be given according to the times listed in the schedule of classes or times assigned by the department head. Examinations are normally scheduled during the first three class days of the quarter.

5. Successful completion of an examination will be recorded on the permanent academic record as "credit by examination" with a grade of "S." Grades of "S" are not used to compute the grade point average. Should a student fail to take or pass the credit examination there will be no entry made on the student's academic record.

6. Credits through this type of examination are limited to thirty (30) semester hours on a student's degree plan.

Mathematics Credit by Placement

A. Each student who is eligible by the stated placement criteria for beginning freshmen to enroll in Math 112 will be awarded credit by examination in Math 111 if a grade of B or higher is attained in Math 112 on the first enrollment in Math 112.

B. Each student who is eligible by the stated placement criteria for beginning freshmen to enroll in Calculus (Math 220, Math 222, Math 230) will be awarded credit by examination in Math 111 and Math 112 if a grade of B or higher is attained in Math 220 or Math 230 for the first enrollment in the course. If such a student earns a grade of B or higher in Math 222 for the first enrollment in the course, credit by examination will be awarded in Math 111 only.

Credit Based on Military Experience

Honorably discharged members 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 course work completed in service schools where equivalence in terms of college courses has been recommended for college credit in the "Guide to the Evaluation of Education Experience in the Armed Services," published by the American Council on Education. Official documents must be submitted to the Office of the Registrar for an evaluation of these experiences.

Credit Through DANTES

Louisiana Tech University is a participating institution with the Defense Activity For Non-Traditional Education Support (DANTES) program. Credits earned are recognized

by the University in accordance with the recommendations of the curriculum in which the student enrolls and must not duplicate other college credits earned.

Academic Regulations

Student Classification and Admission Credential Requirements

A Regular Student is one who has satisfied all 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.

A Full-Time Undergraduate Student is one enrolled in at least 8 semester hours for the quarter, excluding "credit examinations" and courses taken as "audit". An undergraduate student enrolled in four semester hours during a six-week period in the Summer is also considered full-time.

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

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 one quarter. A student is not eligible to register for an additional quarter under the visiting student classification without reapplying.

A Transfer Student is one who has previously enrolled at another college or university prior to enrolling at Tech.

A Post-Baccalaureate Student holds at least one bachelor's degree from a fully accredited college, but has not been admitted to the Graduate School and is not pursuing a prescribed curriculum. A post-baccalaureate student may not take classes 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.

Classification by Hours Earned

Freshman . . . . . 1--29 hours earned
Sophomore . . . . . .30--59 hours earned
Junior . . . . . .60--89 hours earned
Senior . . . . . .90 semester hours earned-Graduation

General Education Requirements

Louisiana Tech University has chosen to strengthen undergraduate education by requiring each curriculum to include a core of general education requirements. The requirements are as follows:

ENGLISH . . . . . .6 Hours
Freshman Composition
MATHEMATICS . . . . . 6 Hours
Math 110 or above and one additional three (3) hour course in Math or Statistics
COMPUTER LITERACY
Curriculum chosen by the student must provide basic instruction in and/or use of computer technology.
NATURAL SCIENCES . . . . . 9 Hours*
Physical Sciences . . . . . .Chemistry, Physics, Geology
Biological Sciences . . . . . Biological Sciences

*Must include both physical and biological sciences with at least six (6) hours from a two-quarter sequence.

ARTS . . . . . 3 Hours
Must be taken from courses such as:
Art 290 . . . . . .Art Appreciation
Health & Physical Education 280 Dance Appreciation
Music 290 . . . . . .Music Appreciation
Speech 290 . . . . . Theatre Appreciation
HUMANITIES . . . . . 12 Hours
History**, Literature**, Speech Communication**, Languages (above the introductory level), Philosophy, English*

*Must include at least three (3) hours at the sophomore level or above.

**Minimum of three (3) hours required.

SOCIAL SCIENCES . . . . . 9 Hours*
Economics, Geography, Anthropology, Political Science, Psychology, Sociology
*Minimum of two (2) disciplines
TOTAL . . . . . 45 Hours

Degree Programs

Louisiana Tech has been authorized to grant two associate degrees, five baccalaureate degrees and eleven graduate degrees. The associate degrees are: Associate of General Studies and Associate of Science.

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, Master of Science, Master of Business Administration, Master of Professional Accountancy, Master of Fine Arts, Master of Education, Specialist in Education, Doctor of Business Administration, Doctor of Philosophy, Doctor of Engineering and Doctor of Education.

Minors

A minor will consist of a minimum of 21 hours of course work; a minimum of 40 to 60 percent of the courses will be in the 300- to 400- level. Minors may be offered in various departments at Louisiana Tech University. Please refer to College and departmental sections for information concerning available minors. Minors should be determined no later than the junior year (completed 60 hours) at which time the student's minor plan will be documented and placed in the student's departmental major folder. Progress toward completion of minor requirements is to be monitored by the student's major advisor. Approval and certification of minors are the responsibility of the student's major college. Minors are indicated on the student's transcript. Students may complete more than one minor.

Curriculum Matriculation

1. Students in Basic and Career Studies (undecided) and those students entering specific colleges from Basic and Career Studies will be allowed to follow the curricula that were in effect at the time of their admission to the University, as long as the students are pursuing their degrees on a continuing basis.

2. Students transferring from one college to another on campus or those transferring from other institutions are not

allowed to follow a curriculum that was in effect before they transferred.

3. Students who change their major must follow the curriculum in effect at the time of the change.

4. Students may follow an updated curriculum that becomes effective while in a program of study; however, mixing of curricula is not permitted in satisfying requirements for graduation.

5. Students who interrupt their studies and do not attend for more than three quarters (including the summer quarter) are required to follow the curriculum in effect when they return to the institution.

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 career will be orderly.

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 affect hours pursued or quality points and is not computed on any GPA. 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 "IF" cannot be issued. If an instructor grants a grade of "I", it is his/her responsibility to "contract" with the student as to what work is still required, when the work is due, and then to personally report the final grade to the Registrar's Office before the deadline listed in the quarter calendar. The maximum amount of time which can be allowed a student to complete incomplete work is Friday of the fourth week of the following quarter (except students receiving "I" grades at the end of spring quarter have until the fourth week in the following fall quarter to complete). "I" grades are removed only by completing the course work, and not by registering for the course again. Exceptions are courses in graduate research or thesis numbered 551, 555, 580, 590, and 651. A student may be placed on, or removed from, probation or suspension based on the final grade at the time an "I" grade is cleared.

A "W" is issued 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 eight weeks of a quarter. The "W" grade is not included in computing the student's average. 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.

Grade Point Average

A student's cumulative grade point average is obtained by dividing the total quality points by the total number of hours pursued. This is the official GPA used to determine academic honors, class standing, academic probation, and academic suspension. 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. The earned average does not appear on transcripts.

Good Standing

It is expected that all undergraduate students should maintain a cumulative GPA of at least 2.0 (C) on all college work attempted and on all work attempted at Tech. The university will, however, certify a student to be in "good standing" as long as that student is eligible to be enrolled.

Academic Misconduct

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.

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 to the student within ten (10) class days after the appeal deadline. When appeals are referred to the committee, the final decision should normally be communicated to the student by the dean within twenty (20) class days after the appeal deadline.

Transcripts and Grade Reports

The official permanent academic records for all Tech students are in the custody of the Registrar's Office. Release of these records is 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 will not be issued for any student who has an unfulfilled obligation to the University. This is termed a "charge" and must be cleared with the department holding the charge. Transcripts are a service provided by the Registrar's Office for which there is no fee. Quarterly grade reports are mailed to the student's home address.

Minimum University Scholastic Standards

Academic Status:

There are three categories of academic status for undergraduate students: academic good standing and eligible to be enrolled, academic probation and eligible to be enrolled, and academic suspension, therefore, not eligible to be enrolled. Although students will usually receive official notification of academic status, such notice is not a prerequisite to students being placed in one of the above categories. Students have the responsibility to ascertain their academic status prior to the beginning of the next enrollment period.

Academic Probation

Undergraduate students will be placed on academic probation whenever their cumulative averages are ten or more quality points below a 2.0 average. To determine this, one should multiply by two the cumulative hours attempted. If the answer is ten or more quality points greater than the actual cumulative quality points earned, students are placed on probation. (e.g., Student pursues 40 semester hours and earns 71 quality points. Multiply 40 X 2 = 80: subtract 71 from 80 = 9; student is not on probation because nine is less than ten.)

1. Once on academic probation, a student will remain on probation (as long as each quarter average is at least 2.0) until the cumulative GPA of 2.0 or higher is achieved.
2. Once a cumulative GPA of 2.0 or higher is achieved, a student will be cleared of academic probation and placed in academic good standing.

Academic Suspension

Undergraduate students on academic probation will be suspended at the conclusion of any quarter, including summer, in which they fail to earn a GPA of at least 2.0. First-time freshmen will not be suspended prior to the completion of three quarters of enrollment.

1. The period for the first suspension will be for one quarter. All subsequent suspensions will be for three quarters.
2. A student on academic suspension from Louisiana Tech University may not obtain credit toward a degree at Tech for courses attempted at another institution during the suspension period. No credit earned while under suspension from another university will be accepted toward a degree at Louisiana Tech University.

Readmission from Suspension

Appeal for reinstatement after academic suspension may be made to the student's academic dean or Director of Basic and Career Studies, as appropriate. Reinstated students will be continued on academic probation.

Academic Renewal

Undergraduate students who have dropped out or have been suspended because of poor academic performance may request to start over with the status of an entering freshman at Louisiana Tech University under the provisions of academic renewal. The following conditions apply:

1. At least five consecutive calendar years must elapse between the end of the quarter in which the student was last registered for credit at any college or university and being enrolled under academic renewal.
2. The student must submit a written application for academic renewal to the Director of Admissions three months prior to the first quarter of enrollment. This application should indicate any circumstances which have changed since the last enrollment that would support a reasonable expectation of the candidate's academic success.
3. A subcommittee appointed by the academic dean of the college of enrollment, with appropriate representation from faculty and students, will review the application to determine the candidate's eligibility for renewal.
4. No prior academic credit carries forward as part of a degree program; however, the prior record remains a visible part of the student's transcript.
5. If granted, the date of academic renewal is entered upon the transcript along with a statement prohibiting use

of previously earned credits and quality points to meet degree requirements, to compute the grade point average leading toward undergraduate certificates or degrees, or to determine graduation status.

6. Upon being granted academic renewal, the student has status as entering freshman with no credits attempted and no quality points earned.

7. A student demonstrating competency in a given area may be allowed advanced standing (without credit) or a waiver of requirements just as any entering freshman. Credit examinations may be taken for courses in which grades of "C" or higher were earned.

8. Academic renewal may be granted to a person only once, regardless of the institutions attended.

9. Students are cautioned that many undergraduate professional curricula graduate and professional schools compute the undergraduate grade point average over all hours attempted when considering applications for admission.

10. Transfer students who have previously been granted academic renewal will use the application procedure described above for consideration of transfer of renewal. Action to be taken by the appropriate college dean.

11. Academic renewal does not pertain to accumulated Financial Aid history. Accumulated quarters and award limits include all quarters on enrollment.

Outstanding Academic Achievement

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 nine semester hours pursued, (c) no grade lower than a "B."

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 nine hours pursued with no grade lower than a "C."

(Also, see "Graduation with Honors").

Graduation Requirements

Graduation requirements for the Associate and Baccalaureate degrees are as follows:

Associate Degree Requirements

The Associate of General Studies or Associate 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.

2. He/she must make a "C" average on hours earned. A student who is deficient on an hours earned basis of more than 6 quality points of a "C" average at the beginning of the final quarter will not be allowed to register for graduation. A transfer student must also make a "C" average on all hours earned at Louisiana Tech.

3. If he/she is a transfer student, he/she must not have less than 24 weeks in residence at Louisiana Tech, during which at least 25 percent of the semester hours required for the curricula are earned with a minimum 2.0 grade point average.

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. The student 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 during the quarter he/she is a degree candidate.

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 are 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 that specific requirements are satisfied for both degrees.

If a student wishes to earn a baccalaureate degree from Louisiana Tech, 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 deficient on an hours earned basis of more than nine quality points of a "C" average at the beginning of the final quarter will not be allowed to register for graduation. A transfer student must also make a "C" average on all hours earned at Louisiana Tech.

3. If he/she is a transfer student, not less than 36 weeks residence at Louisiana Tech is required, during which at least 25 percent of the semester hours required for the curricula are earned with a minimum 2.0 grade point average.

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 and register for graduation 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 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 during the quarter he/she is a degree candidate.

Each degree candidate is expected to be present at the commencement ceremony. A candidate can petition to be absent through a written request to the University President. Information concerning duplicate diplomas, diploma mailing fees, and other diploma services can be

obtained from the Registrar's Office.

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 all requirements for the second degree.

A student may acquire a **double major** under a single baccalaureate degree by completing the total hours required for one degree and the total hours required in the subject courses for the second major.

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.

Graduate Degree Requirements:

For specific degree requirements, see the Graduate School section of this bulletin.

Graduation with Honors

An undergraduate student receiving a baccalaureate degree shall receive special recognition by the University. The student is honored at graduation by a suitable inscription on the diploma and by verbal 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 their 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.

Certificate of Excellence

The Board of Regents shall award the Certificate of Excellence to a student who, upon completion of the requirements for the baccalaureate degree, has successfully completed the following course work in general education with a cumulative GPA of 3.0 or better on a scale of 4.0.

ENGLISH . . . . . .9 hours

6 hours Composition, 3 hours Literature.

MATHEMATICS . . . . . .6 hours

No course below college-level algebra may be counted.

COMPUTER LITERACY

Requirements to be determined by each college.

NATURAL SCIENCES . . . . . .11 hours

The natural science requirement must include credit in both physical and biological sciences and must be met by taking required courses for majors. The requirement must include a two-quarter sequence, two hours of laboratory experience, and an additional course worth at least 3 semester credit hours.

ARTS . . . . . .3 hours

HUMANITIES . . . . . .15 hours

To include at least 3 semester credit hours at the sophomore level or above; to include at least 6 semester credit hours of a foreign language above the introductory level. Courses must be in addition to those used to satisfy the requirements in other areas such as English, art, foreign languages, and literature.

SOCIAL SCIENCES . . . . . .6 hours

TOTAL SEMESTER HOURS 50

Division of Student Affairs

The Division of Student Affairs is organized for the purpose of assisting students in determining 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; career development; intramural program; commuter's lounge; vehicle registration; student conduct; student activities and student organizations.

"Visiting" students (see Inter-institutional Cooperative Programs) 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 University of Louisiana System, 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 University of Louisiana System 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 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 Office of Student Life no later than fourteen (14) days prior to the beginning of the quarter. The student will be notified by the Office of Student Life of the decision rendered by the Committee. (Forms are available in 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 to 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. Such appeals will be made to the Office of Student Life and shall apply only to students who have submitted applications before the listed deadline.

Single, full-time undergraduate students who are living with their parents must submit a Commuting Form, complete with the signature of the student and his/her parents. This form, which is available in the Housing Office, must be notarized and submitted to the Housing Office.

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 recognized 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 parent.

"Date application was received" means recording the date the applications for exemption are received in the office of 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 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 (2) a picture of the applicant attached and (3) a $50.00 reservation deposit (check or money order only). All residence hall students are required to pay for room and meals. Fall assignments are mailed the middle of July and winter, spring, and summer assignments are mailed one week before the quarter begins.

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. Roommate requests must be mutual. Returning students presently living in the residence halls are re-assigned to their same rooms fall quarter through spring quarter unless a room change is requested. A limited number of halls are open each summer quarter. All buildings close at the end of each summer quarter.

Signing the Room Reservation Card

At an announced time during each spring quarter, all current residents sign a room reservation card in the Housing Office to choose a room for the summer and/or fall quarters or to cancel their fall and/or summer reservation. Private room contracts must be renewed at this time also. Those wishing to remain in their same rooms are given first preference. The remaining spaces are given out on a first-come basis. Failure to sign a reservation card within the announced time frame may

result in the loss of the resident's current room.

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. Louisiana Tech is not responsible for loss of property in the residence halls due to theft, floods, interruptions of utilities, or other causes. A personal property insurance policy is recommended.

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 current student who does not plan to return to the residence hall the next quarter must advise the Housing Office of his/her plans and claim the deposit by the close of the current 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 Hold Deposit 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.

Academically suspended students must check out of the dorm by Friday of the first week of the quarter.

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 the 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.

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: Two hundred and fifteen dollars ($215.00) 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. Only electrical appliances are allowed.

Change of Apartment Rent May Occur Without Notice

International Students and Faculty

The International Student Office provides the following assistance to international students and faculty:

1. Orientation to his/her new U.S. environment,
2. Personal advisement and educational guidance,
3. Processing immigration paperwork for practical training; transferring to Tech; work permission; replacement of immigration documents; and other immigration needs of international students. The International Student Coordinator will answer questions concerning immigration procedures which affect international students and coordinate international student activities and cross-cultural programs. The International Student Office also provides a range of immigration services for foreign faculty members and staff. It serves as a liaison between the international population and the host community on the Tech campus and in Ruston. The International Student Office is located in Room 333, Keeny Hall.

University Health Center

The University Health Center has registered nurses on duty between the hours of 7:30 A.M. and 4:30 P.M., Monday through Friday. Services are offered to all students and include, but are not limited to, physical assessment of ears, eyes, nose, throat and upper respiratory, first-aid treatment for minor injuries, removal of stitches, blood pressure checks and the administering of allergy and immunization shots. Limited lab work and over-the-counter medications as well as crutches are also available. Referrals to medical doctors are made when indicated. Student medical histories are maintained by the Center. Services are located in South Hall; for more information call 257-4866.

Medical expenses for services incurred outside the Health Center are the responsibility of the student. See "Accident and Health Insurance" as described on this page.

Student Accident and Health Insurance

Accident insurance 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. In addition, students have the option of purchasing health insurance for their individual needs and/or for their dependents. This insurance may be purchased at Registration or at the SGA office.

Counseling Center Services

Licensed, professional counselors and the consultation of a licensed psychologist are available to students who are experiencing personal/emotional concerns such as adjustment to college, relationship problems, sexuality concerns, anxiety, stress, anger, depression, suicidal ideations, etc. The Counseling Center also provides support groups for eating disorders. grief management, survivors of sexual abuse, and adult children of dysfunctional families. Professional counseling is offered to enrolled students free of charge and delivered under a code of confidentiality. The Center is located in Student Services, 310 Keeny Hall, 257-2488.

Study Skills Development

Student Services offers both written and computer assessments and informational group sessions for study skills development each quarter. This program supports the student in developing a study system that works by examining such factors as time management, examination preparation, anxiety reduction, concentration and memory improvement, and the enhancement of motivation and commitment to a college education. Individual tutoring for various academic courses is offered on a first-come, first-serve basis. For more information contact Student Services in 310 Keeny Hall, 257-2488.

National Testing Center

Information and/or registration material for national tests are provided through the Testing Center. National standardized examinations offered through this Center are the following: ACT, AHPAT, CLEP, GMAT, GRE, HOBET, LSAT, MCAT, NLN, PRAXIS; the MAT is by appointment. For more information contact the Center in Student Services, 310 Keeny Hall, 257-2488.

Center for Career Decision Making

Quarterly workshops and individual career counseling are provided to assist students in developing career decision-making skills, in assessing ability, personality, interest and values and in acquiring information about career fields. A Career Resource Lab houses hundreds of current publications as well as computerized information systems. Services in the Center are offered free of charge. For more information contact Student Services in 310 Keeny Hall, 257-2488.

Career Center

The Career Center offers numerous resources and services to the students and alumni of Louisiana Tech University. Students are encouraged to participate in on-campus interviews and to attend seminars which assist in the development of job search skills. Seminars are offered quarterly on the following topics: Orientation, Writing an Effective Resume, The Successful Interview, and Transitions from Campus to Career. Professional Dining Etiquette Seminars are also conducted quarterly. Additional resources include job vacancy listings and a Career Information Council. An extensive Career Library contains informational and employer videos, employer literature, reference materials, professional journals, career education and planning information, and information relating to federal employment opportunities. Annually, the Center sponsors the University Career Day during the fall quarter, the Summer Adventures Job Fair during the winter quarter, and the Teacher Recruitment Day during the spring quarter. Evaluations and letters of recommendation may be added to a confidential file at a student's request. Individual appointments are available to students and alumni with concerns about any phase of career planning and development.

The Career Center is located in Keeny Hall 337 (phone 257-4336).

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 third day of classes 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 employee. See vehicle regulations for family visitor parking rules. Students may register more than one vehicle.

Vehicles may be registered and decals obtained in the Campus Traffic Office, located in South Hall.

Each registrant will need to present a valid driver's license and vehicle registration certificate or bill of sale. All faculty, staff, and students are bound by parking and traffic regulations regardless of whether or not they register a vehicle. The pamphlet "Louisiana Tech Vehicle Regulations" may be obtained in the Traffic Office.

Student Conduct

Students at Louisiana Tech University 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 forth in the pamphlet entitled "Code of Student Rights, Responsibilities, and Behavior." Each student is required to become acquainted with the contents of this pamphlet which can be obtained in the Office of Student Life.

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.

University Police Department

The Louisiana Tech Police Department enhances the University's mission by contributing the following:

- Contributes to campus safety by enforcing city, State and Federal statutes which is accomplished through vehicular patrol, foot patrol, criminal investigations, and narcotic investigations, mounted horse patrol, and police cart patrol.

- Enhances the welfare of students by providing assistance as needed, i.e., providing escorts, providing traffic control, providing officers to increase safety at athletic and special events, and providing assistance in emergency situations.

- Conducts public education seminars in child safety, drug education, theft prevention, and D.W.I. awareness.

- Enforces behavioral standards for students as provided for in the Code of Student Rights, Responsibilities, and Behavior pamphlet.

- Operates a 24-hour information and communications center at the department.

a) Under Louisiana law, Act 269, Louisiana Tech police officers have law enforcement authority including the power of arrest and are commissioned by the Department of Public Safety. All Louisiana Tech police officers are graduates of a P.O.S.T. certified basic police academy. Additionally, officers attend advanced training and update training as needed.

b) The Louisiana Tech Police Department employs twenty (20) commissioned police officers, two (2) secretaries and approximately fifty (50) student employees.

c) The Louisiana Tech Police Department is located in South Hall on the corner of Tech Drive and Hergot Avenue. Any on-campus emergency, request for on-campus police assistance, or the reporting of on-campus criminal activity should be made to the Louisiana Tech Police Department at 257-4018. Patrol officers are radio dispatched upon call to assist the public 24 hours a day, 365 days a year. Criminal activity is investigated by the Patrol and Investigative Divisions of the Department and offenders are subject to criminal prosecution and University action. Criminal activity may also be reported under the Louisiana Tech CrimeStoppers program at 257-4018. Louisiana Tech crimestoppers is a regular feature in the student newspaper. Procedures for responding to campus emergencies are outlined in the University Safety Manual.

d) The Louisiana Tech Police Department is a department in the Division of Student Affairs directed by the Chief of University Police who reports to the Associate Vice President for Student Affairs. Additional information on the University Police Department may be found in the Student Handbook.

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 guide to student organizations is included in the Student Handbook which is provided for every student. Copies may be obtained in the Student Center and Student Life offices.

Student Financial Aid

Louisiana Tech University 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 in obtaining an education at Louisiana Tech.

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

Employment is available in a wide variety of forms to the student who is willing to work. Areas of work include but are not limited to clerical, maintenance, food service, laboratories, library, and dormitories. Pay rates are commensurate with the skill and experience required and work is limited to avoid interference with academic pursuits. The University participates in the Federal College Work-Study Program designed to assist students with financial need in addition to employment available through individual departments on campus.

The student is advised to make inquiries at the Office of Student Financial Aid in person or by writing P. O. Box 7925, Ruston, Louisiana 71272-0029 in early spring prior to fall enrollment.

Students must meet the requirements for "satisfactory progress" in order to be eligible for participation in the programs of student financial aid at Louisiana Tech University. Questions pertaining to what constitutes "satisfactory progress" may be directed to the Office of Student Financial Aid at Louisiana Tech University. 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.

All applicants for federal financial assistance must complete their file in the financial aid office at least three months prior to the beginning of the quarter for which they seek to receive aid. Late applications will receive less favorable funding than those meeting deadlines. The following sources of financial assistance are available to eligible students, providing funds are available.

Monthly Payment Options For Students and Families

Tuition Management Systems offers families several

Monthly Payment Options to help make education expenses more affordable. The Interest-Free Monthly Payment Option enables families to spread all or part of the annual expenses over equal, monthly payments. There are no interest charges, and only a small annual fee. This plan includes life insurance protection covering the unpaid balance at no additional cost. Additionally, low-interest monthly payment options, including an unsecured loan, a home equity credit line, and the federally-backed loans, are also available. Please contact Tuition Management Systems at 1-800-722-4867 or (401) 849-1550 for more information on these programs.

Federal Perkins Loan Program

A Perkins Loan is a low-interest loan designated to help undergraduate and graduate students pay educational costs. A student may borrow up to a maximum of $15,000 for an undergraduate career. A graduate student may borrow up to an aggregate for all years of $30,000. A new student borrower has a nine-month "period of grace" after the student ceases to be enrolled on at least a half-time basis at the University before payment must begin. Students attending less than full-time receive a reduced loan reflecting reduced educational expenses.

Subsidized and Unsubsidized Federal Stafford Loan Program (Formerly Guaranteed Student Loan Program)

Stafford loans are available for students meeting certain qualifications. Loans are made up to $2,625 for first year students, $3,500 for second year students, $5,500 per year for undergraduate students who have completed two years, and up to $8,500 per year for graduate students. Students in a two-year program are restricted to borrowing $2,625 for the first year of the two-year program and $3,500 for the second year of the program, regardless of units earned prior to entry into the two-year program.

Aggregate loan limits are: $23,000 for undergraduate and $65,000 for graduate/professional students including loans received for undergraduate study.

After a student's application has been processed by the Office of Student Financial Aid, the application is submitted to a participating lender such as a bank, credit union or savings and loan association. This process may take three weeks before funds are available. First-time undergraduate borrowers will not receive their first loan disbursement until thirty (30) days into their first quarter at Tech. Under the Subsidized Stafford Loan Program, interest charges to the students and repayments begin six (6) months after the student is no longer at least a half-time student. In the Unsubsidized Stafford Loan Program, interest does accrue while the student is enrolled on at least a half-time basis and students are required to make interest payments while in school.

To apply, a student should contact the Financial Aid Office at Louisiana Tech University for the loan application form. Out-of-state students should contact the guarantee agency in their state or the lending institution from which they will seek their loan for the appropriate application. The application should then be submitted to the Financial Aid Office at Louisiana Tech in order to determine eligibility.

Federal PLUS Loan Program

PLUS loans are meant to provide additional funds for educational expenses. Like Stafford Loans, they are made by a commercial lender such as a bank, credit union, or savings and loan association.

Parents may borrow up to the cost of education minus aid, per dependent student, per year.

Please contact the Financial Aid Office for further information.

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. Students with disabilities are advised to contact the Department of Vocational Rehabilitation in their districts for consideration of their cases.

Federal Supplemental Educational Opportunity Grant Program

This grant is a Federal aid program that provides assistance, to the extent that funds are available, for students with exceptional financial need. Grants are available to undergraduate students and priority consideration is given to Pell Grant recipients.

Federal Pell Grant Program

Authorized under the 1972 Higher Education Act this program provides for grants to students seeking a first baccalaureate degree. Applications are available through high school counselors and the Financial Aid Office at Louisiana Tech. Grants range from $400 to $2,340 per year for full-time attendance.

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 appropriate application to be considered for the grant program. Current regulations provide for annual awards up 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

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

Some of the academic scholarships are: University of Louisiana System, Tech Alumni, McGee Memorial Scholarship, Outstanding Student Scholarships, and Century Telephone Enterprise Scholarships. Students interested in applying should contact the Division of Admissions, Basic and Career Studies.

Scholarships are divided into the following categories:

Academic Scholarships 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 academic department awards.

The Air Force Reserve Officer's Training Corps program offers a number of competitive scholarships to both men and women participants. This award may 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

Athletics

Louisiana Tech athletics have been a member of the National Collegiate Athletic Association (NCAA) since 1951 and all sports are in Division I. Tech is currently playing in the Sun Belt Conference, in all sports but football and softball. In those sports Tech is an independent.

In men's sports, Tech competes in football, basketball, baseball, outdoor track, indoor track, golf, and cross country. In women's sports, Tech competes in basketball, softball, tennis, volleyball, indoor track, outdoor track, and cross country.

The University's first priority in athletics is to produce well-rounded programs with excellence in all areas. Eligibility for intercollegiate competitors is determined by the rules and regulations established by the NCAA and the Sun Belt Conference. Tech is especially proud of its athletic complex which includes a 30,000-seat football stadium, 8,000-seat basketball arena, 2,000-seat lighted baseball stadium, 600-seat lighted softball field, 9-lane tartan track, 9-hole golf course and 10 lighted tennis courts.

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 Bachelor of Science in Electrical Engineering Technology may also be earned. The Master of Arts degree may be earned in Counseling and Guidance and in Industrial/Organizational Psychology. The Master of Business Administration may be earned with a specialty in either Finance or Management.

Center Of Excellence In Manufacturing Systems Engineering (ManSER)

The State of Louisiana established an interdisciplinary Center of Excellence in Manufacturing Systems in the College of Engineering at Louisiana Tech as a part of an overall economic development program. The State will provide resources to enhance and sustain the significant capability already established at Tech by means of industrial support. In this way Louisiana can demonstrate clearly its intention to meet the needs of manufacturing industries that must make changes to cope with the pressures of competing in global markets. This activity will build upon the strength of the College of Engineering at Louisiana Tech, support the retention of existing industries and promote the acquisition of new ones and help fulfill the mission of the University to provide excellence in engineering, science, business and technology.

On June 23, 1988, a Research Center in Manufacturing Systems Engineering was approved for the Louisiana Tech College of Engineering by the Louisiana Board of Regents. The research/service component is called the Manufacturing Systems Engineering Research (ManSER) Center. The program was formulated after intensive study of the needs of manufacturing industries for people to engineer systems which can manufacture goods that will be competitive in the global marketplace of today. The demands of this market are significant in terms of product quality, performance, reliability and price.

These demands, although obvious, are not the only ones to be confronted by manufacturing systems. A very important, but less well recognized demand is to shorten the time required to move new products from the idea stage to the marketplace. It is extremely important for a manufacturer to establish a leadership role and capture a significant share of its market. This demand places great stress on the manufacturing system. It must be able to very quickly configured for the production of each new product and possibly for simultaneous production of different products. It must facilitate a quick transition from the design activity for a product to the manufacturing activity. This requirement is often best met by flexible manufacturing systems whose components are often integrated by computer-based means.

The ManSER Center was created for the following five specific functions:

1. To serve as an umbrella organization for manufacturing research, development, and marketing at Louisiana Tech University.
2. To promote the performance of interdisciplinary research in manufacturing systems engineering.
3. To facilitate technology transfer and application.
4. To provide educational opportunities in manufacturing.
5. To develop world-class manufacturing capabilities in selected areas.

The ManSer Center is in concert with the mission of the University and directly supports the effort to make Louisiana a world class competitor in global markets.

Center for Rehabilitation Science and Biomedical Engineering

In 1985, the Louisiana Board of Regents established the Center for Rehabilitation Science and Biomedical Engineering at Louisiana Tech as a university-wide Center of Excellence. Committed to education, research, and service, the Center's activities range from the study of disabilities to the application of technology to assist disabled persons. The Center is part of the Biomedical Engineering Department and is housed in the 63,000 square feet Biomedical Engineering Center complex. The building includes staff and administrative offices, educational facilities, research and assessment laboratories, and a dormitory for severely disabled individuals. Additional resources of the Center include

wood, metal, and electronics shops, graphics and video studios, and various vehicles used in the Center's driver-training programs. Active at the state, national, and international level, the Center provides opportunities for faculty and students from throughout the entire university to participate in the activities and programs of the Center.

Cooperative Education 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 the College of Engineering. In addition to furnishing talent to industry, the cooperative program provides an outstanding method for integrating technical and practical industrial experience.

The College of Human Ecology offers supervised practice with health centers, retail centers, and public and private agencies. Cooperative educational training programs are available for experience in local and metropolitan areas.

The College of Life Sciences sponsors a cooperative work experience program with various 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.

Extramural Programs

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. The Division of Continuing Education, Louisiana Tech University has affirmed its commitment to the role of public service. Annually, hundreds 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.

Institute for Effective Engineering Teaching

The character of the student body entering college today is vastly different from even ten years ago, and teaching techniques must be flexible enough to reach the cultural diversities found in each new freshman class. With this in mind, the College of Engineering has expanded an existing departmental emphasis into a college-wide thrust. The IEET has three main focal areas: Innovative Teaching Techniques, Use of Technology in Education, and Diagnostic/Improvement activities. Seminars, workshops, and formal classes are held throughout the year for both faculty and students, as the need arises. The Myers-Briggs Type Indicator (MBTI) will be administered to each incoming freshman class, and results will be correlated with those from the faculty to determine the most efficient methods and techniques to use in the classroom. IEET personnel welcome other faculty and student input to accomplish their mission.

Institute for Micromanufacturing

The focus of this Institute is applied rather than basic research, emphasizing the design and development, the metrology, the inspection and testing and the assembly and production of micron and submicron structures and devices. Related to these microstructures and devices, the following areas will be emphasized: sensors, manufacturing techniques, systems and structures. The transfer of these new technologies to government, academia and industry and the education of students, particularly graduate students, are given high priority. The mission of the Institute is:

- committed to partnerships with industry
- provide diversity in process research and development activities yielding the best miniaturization technologies for the economic manufacturing of small products
- maintain an interdisciplinary and flexible organization capable of adapting to meet the needs of industry
- service, education and curricula development in microfabrication technologies.

The Institute for Micromanufacturing is composed of three components. The focal point for the Institute for Micromanufacturing is the component for research and development located on the Louisiana Tech University campus in Ruston. A second component is associated with the Center for Advanced Microstructures and Devices (CAMD) in Baton Rouge. This component performs research associated with the X-ray lithography micromachining capability at CAMD. The third and final component of the Institute is Technology Transfer and Engineering Research. The component is located in Shreveport/Bossier in order to take advantage of the unique opportunities and resources offered in this region. There is strong interaction among the three components of the proposed Institute and each of the components interact to varying degrees with universities, industries and research centers world-wide.

Inter-Institutional Cooperative Program

Louisiana Tech University and Grambling State 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 may apply toward a degree at the 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 to the home institution at reporting time by the visited institution. Credit from the ICP classes is reported on the home school's transcript as transfer work. To be eligible to participate in the ICP program a student must pay "full time" tuition at the home institution. Louisiana Tech Barksdale, extension classes and credit examinations are not included in the ICP program.

Louisiana Tech Astronomy Facilities

The astronomy facilities of Louisiana Tech can be 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 observatory has an eleven inch reflecting telescope maintained by the Physics Department. An 10-inch Smidt-Cassagrainian mount telescope is also in use.

The Planetarium seats 120 people under its 40-foot diameter dome. A 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.

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 supporting activities for the campus includes an IBM ES/9000 (9121-210) running VM/XA and MVS operating systems, 45 billion characters of disk memory, 4 high-speed tape drives, a network of about 750 full-screen terminals, 20 14400-baud dial-in ports, and 14 2400-baud dial-in ports. Language processors for FORTRAN, COBOL, PL1, BASIC, PASCAL, and Assembler languages are supported on this equipment. Popular software systems supported include SAS, SPSS, ICES, STRUDL, IMSL, NASTRAN, ACSL, FLOWTRAN, and COMPUSTAT.

The Computing Center is responsible for the INTERNET/BITNET connection and routing. Additionally, the Center participates in campus WAN/LAN activities.

The Computing Center operates a central laboratory of 35 full-screen terminals and a line printer for use by students and faculty. This laboratory is located on the third floor of Wyly Tower and is available approximately 85 hours per week. The Computing 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 70 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

The Louisiana Tech Concert Association serves as an integral service of the School of the Performing Arts. It offers the Tech and Ruston communities the world's best music, dance, and theatre performed by internationally acclaimed artists.

Louisiana Tech Equine Center

Breaking, training, and breeding services are offered to the Equine industry as an integral part of Tech's popular Equine program within the Agricultural Sciences, Technology and Education Department. Prominent Thoroughbred stallions, representing some of the most popular Bloodlines in America, are utilized in the breeding program. Racetrack training makes use of both on-campus tracks and commercial facilities at Louisiana Downs.

Louisiana Tech Museum

The Louisiana Tech Museum was established July 1, 1982, with the objectives of fostering scholarship at the university, encouraging research by faculty and students, helping educate the area school children, and being a cultural center for the region. Numerous exhibits represent the fields of anthropology, archaeology, architecture, art, biological sciences, geology, history, and technology. More than 10,000 artifacts are included in the Indian collections. The museum is not just for viewing but is also a place where study and research can be conducted.

Louisiana Tech Nuclear Center

The Nuclear Center is a centralized facility to control the use of radiation and radioactive material on the Louisiana Tech campus. The Nuclear Center staff is available for consultation on the design of experiments involving radioactive material or radiation produced by machines. 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.

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, 1980, and 1990 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 selected areas of the Nation. Short reports, articles, and research projects are

prepared, both on an in-house and on a contractual basis, for local, state, and regional organizations.

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 certified staff.

Louisiana Tech Teachers' Institute

The Teachers' Institute reflects Louisiana Tech University's long-standing commitment to promoting and enhancing the quality of elementary and secondary education. The primary purposes of the Institute are to provide a formal linkage between faculty in Arts and Sciences, Engineering, Life Sciences, Business, Human Ecology, and Education with the public school teachers; to provide a university structure for the development of faculty joint projects; and to provide an administrative structure for the development of grant proposals. Faculty expertise in the various discipline areas are made available to teachers through workshops, courses, and various other activities. Specifically designed courses are taught by the faculty to expand the teachers' knowledge base and to update them on the latest developments in the field.

Louisiana Tech Trenchless Technology Center (TTC)

The Louisiana Tech Trenchless Technology Center (TTC) is a university/industry cooperative research center under the College of Engineering. TTC was established September 13, 1989, with the purpose of:

1. Promoting technology transfer within the industry,
2. Conducting basic and applied research for industry and government agencies,
3. Assisting industries in developing, marketing and manufacturing new products,
4. Establishing and disseminate standard guidelines and specifications,
5. Monitoring proposed regulations that impact the industry,
6. Developing contractor, designer and inspector training programs, and
7. Providing liaison with related trade and professional organizations.

To carry out the purposes listed, the organization of the TTC consists of a Director, affiliated faculty and staff, an Executive Committee and an Industrial Advisory Board. The Director is responsible to both the Dean of Engineering and the Executive Committee of TTC. The Executive Committee provides policy direction, reviews budgets, monitors progress of projects, and serves as liaison to the Industrial Advisory Board. The Advisory Board is composed of one member from each organization who participates in the industrial consortium. The Board is responsible for monitoring progress of specific projects, identifying and prioritizing current and future needs of the trenchless technology industry, reviewing research results prior to dissemination, assisting in various projects where possible, assisting in transferring information to the public, and promoting construction education and the interaction of students with the industry.

Examples of basic research and development areas conducted or underway by TTC are as follows:

- *U. S. Market Assessment for Trenchless Technology.
- *Load Capacity of Vitrified Clay Pipe Assemblies
- *Evaluation of Manhole and Pipe Rehabilitation materials.
- *Evaluation of Methods and Materials to Install and Rehabilitate Underground Utilities.
- *Long Term Structural Behavior of Pipeline Rehabilitation Systems
- *Investigation of a Flexible-Pipe Microtunneling System.
- *Development of a Line and Grade Tracking System for Conventional Auger and Rock Boring.
- *Directional Drilling Problems - Obstacle Detection
- *Deflection Testing of Microtunneling Pipe
- *Stress Analysis of Pipe Joints
- *Experimental Program for Evaluating Different Epoxy Resin Systems in CIPP Applications
- *Large Scale Microtunneling Experiments to Measure Surface Deformation and Pipe Loads
- *Management Systems for Utility Networks
- *Socio-Economic Analyses of Trenchless Technologies

Lomax Hall Horticulture Conservatory

The public is welcome to visit the Lomax Hall Conservatory and greenhouses. The Conservatory houses a fine permanent collection of tropical flowering and fruiting ornamental plants enhanced by seasonal displays of poinsettias, chrysanthemums, bulbs, and bedding plants. The greenhouses are utilized for educational and teaching activities including propagation, production, and demonstration. Contact the Agricultural Sciences, Technology & Education Department for assistance with individual or group tours.

Mobile Automated Learning Laboratory (MALL)

In January, 1991, the Mobile Automated Learning Laboratory was established in Louisiana as a cooperative effort between business/industry and education. The MALL, donated by Entergy Corporation and Louisiana Power and Light, is staffed and jointly managed by Louisiana Tech University and Grambling State University.

The project goal of the MALL is to provide a better educated workforce by serving the needs of the undereducated adult. The mission of the MALL is to deliver instruction within both community and business/industry sectors based on the theory that a better educated workforce will enhance economic development.

The MALL is a 28 foot motorcoach equipped with eight computer workstations and two interactive video disk stations. The automated instructional delivery system uses software packages containing basic skills programs in reading, language arts, mathematics, and life skills. The programs are designed for adults and provide skill development from adult basic education through the skills needed for the General Educational Development (GED) level with more than 350 lessons. The software also includes a complete management system that tracks student progress.

The MALL travels to worksites in north Louisiana averaging 14 hours a day, five days a week and four hours on Saturday. The staff includes one full-time coordinator and one graduate assistant from each of the two universities.

Approximately 350 students participate with the student population ranging in age from 16 to 72. Students generally meet the MALL at their worksites one hour before or after their shift. Some of the employers pay their employees for working in the MALL. In these cases the student gives an hour and the employer gives an hour and the student spends two hours working in the MALL. The MALL then travels to the next location.

The MALL is one of the nation's most innovative workplace literacy projects and was featured in PBS's Innovations series during an episode entitled The Future is Now: Technology in Education. A PBS crew from New York filmed at two of the worksites. The MALL recently received the Point of Excellence award from Kappa Delta Pi for outstanding contributions to education and the 1992 Thomas P. Harwood, Jr. Excellence in Education award presented by the National Association of Regulatory Utility Commissioners.

Pre-Professional Programs

Louisiana Tech University provides excellent preparation for the student planning a career requiring advanced study in specialized programs.

Pre-Law

Because of the diversity and complexity of this discipline, there is no single curriculum or course of study which is prerequisite to or guarantees success in law school. Students who intend to study law are referred to the Pre-Law Option in the Department of Management and Marketing, College of Administration and Business, and the Pre-Law concentration in the Department of Social Sciences, College of Arts and Sciences. A choice can then be made based upon personal preference and future goals.

Pre-Medicine and Pre-Dentistry

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

The Premedical and Predental Advisory Committee is composed of faculty members representing the disciplines of Biomedical Engineering, Biological Sciences, Chemistry, Clinical Laboratory Science and Bacteriology, and Physics. Students should select a major based upon their personal preferences and plan a course of study in consultation with a premedical or predental advisor.

The minimum requirements for most medical and dental schools include one year each of Biology with lab, General Chemistry with lab, Organic Chemistry with lab, General Physics with lab, and Mathematics, plus two years of English. Also, applicants are required to submit scores on the Medical College Admission Test (MCAT) or the Dental Admission Test (DAT). The test should be taken in the Spring of the junior year prior to application. It is strongly suggested that these examinations not be attempted until courses in genetics, comparative anatomy, animal physiology, organic chemistry, biochemistry, and physics have been successfully completed.

In the Spring of each calendar year, personal interviews are conducted by the Premedical and Predental Advisory Committee for the purpose of evaluating those students preparing to make formal application to either dental or medical school. This interview is a very important part of the student's application process. After the interview, the Committee prepares recommendations that will be reviewed by the Admissions Committee of the professional schools to which the student has applied.

Alpha Epsilon Delta (AED) is a national premedical and predental 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.

Pre-Veterinary Medicine

Students wishing to pursue a career in veterinary medicine are referred to the Pre-Veterinary Medicine Specialty in the Animal Science curriculum. Those who have earned an exceptional grade point average and an acceptable score on the Medical College Admission Test (MCAT) or the Graduate Record Examination (GRE) may wish to apply for admission to veterinary school during their junior year. These students may become candidates for the B.S. degree in Animal Science after completing the first year of work at a veterinary school.

For assistance in planning a course of study students should consult with the Pre-Veterinary Medicine advisor in the Department of Agricultural Sciences, Technology and Education, College of Life Sciences.

Other Health Science Programs

Louisiana Tech offers degree programs in the health science areas, including Nursing, Dietetics, Health Information Management, and Medical Technology.

Nursing: Advisors for the Associate Degree program in Nursing are located in the Division of Nursing, College of Life Sciences.

Dietetics: Programs in Dietetics include an undergraduate didactic program, a post-baccalaureate internship, and a graduate program. These are found in the College of Human Ecology.

Health Information Management: Both an Associate Degree program in Health Information Technology and a baccalaureate program in Health Information Administration have advisors in the Department of Health Information Management, College of Life Sciences.

Medical Technology is a baccalaureate degree program located in the Department of Clinical Lab Science and Bacteriology, College of Life Sciences.

In addition, there are many other health careers for which Louisiana Tech can offer prerequisite courses to prepare students to enter a professional program at another institution. These pre-professional areas are listed below with the department and college in which they are offered:

Cytotechnology, nuclear medicine technology, respiratory therapy, histological technology, physician's assistant, occupational therapy, physical therapy, surgical assistant, and radiologic technology are in the Department

of Clinical Laboratory Science and Bacteriology, College of Life Sciences.

Pre-Optometry and Pre-Pharmacy are in the Department of Chemistry, College of Arts and Sciences.

Pre-Professional Speech Language Pathology is in the Department of Speech, College of Arts and Sciences.

Students interested in any of the health science programs named above should contact the department head in whose department the curricula is shown.

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 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, Human Ecology and Life Sciences. The library is open more than 90 hours each week during regular sessions.

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 programs. TECHNET is an automated library system that allows a user to access the Tech library catalog as well as the library catalogs of other university libraries in the state. The library participates in borrowing programs in cooperation with other major libraries. Prescott Library offers on-line search service to faculty and students on a cost-recovery basis.

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

Special collections available for specialized research, located on the fourth floor, include the American Foreign Policy Center, a continuing collection of microfilmed primary source material for the study of U. S. foreign policy, and the Department of Special Collections, Manuscripts and Archives, comprising the University Archives, the Forestry Archives, the William King Stubbs Architectural Archives, and other manuscript collections documenting the history of the University and the region, as well as rare books, maps, and Tech theses and dissertations.

Bibliographic instruction is offered by 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.

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. The Directors of the College 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.

Science and Technology Education Center (SciTEC)

The essence of SciTEC is its interactive exploration of scientific phenomena. The Center offers exhibits on such topics as mechanics, electricity, optics, perception, and health and allows visitors intimate contact with specially constructed bits of the scientist's universe. Activities of the Center are directed into five major initiatives: Professional Development of Teachers, Exemplary Science Material, Undergraduate Science Education, Hands-On Exhibits, and Community Activities. The Center is housed in the College of Education.

The main function if SciTEC is to provide an active outreach of the University into the surrounding communities. The IDEA Place is one such example. Approximately 100 children each week visit the IDEA Place, a hands-on discovery center for math and science. They come to campus from schools across north and central Louisiana and south Arkansas. Education majors are encouraged to interact with students and gain valuable pre-student teaching experiences as children explore a variety of phenomena ranging from geologic digs to reflecting in a kaleidoscope.

Professional development for preservice and inservice teachers is encouraged through externally funded projects that average $250,000 each year. Other outreach activities of SciTEC including assisting school systems in the preparation of proposals for external funding, holding seminars to assist classroom teachers write proposals, and conducting seminars on the required Louisiana Intern Teacher Evaluation Program.

Tech Bossier Center

Louisiana Tech University through its facilities at Tech Bossier offers educational services and opportunities to the citizens of northwest Louisiana.

A wide range of extension courses are offered in conjunction with the main campus in Ruston which can lead to degrees in the College of Engineering, College of Education, College of Human Ecology, College of Administration and Business, College of Arts and Sciences, and College of Life Sciences. Graduate degree programs in accounting, engineering, nutrition and dietetics, and human ecology education are available at the Bossier Center.

Applications for admissions and registration are handled by the Office of Admissions.

Continuing education and professional development seminars and workshops are offered at the Tech Bossier Center. These are non-credit activities designed to meet the immediate educational needs of people.

The IDEA Place

The IDEA Place (Investigate, Discover, Explore, Ask) is a hands-on children's museum designed to provide children and adults an opportunity to experience the excitement of learning about mathematics and science through interactive activities. The museum, housed in Woodard Hall, offers exhibits on such topics as mechanics, electricity, optics, etc. Activities of the Museum focus on five major initiatives: professional development opportunities for teachers, development and distribution of exemplary science materials, undergraduate science education, hands-on exhibits, and community activities.

International Education

Louisiana Tech University, in seeking to provide its students with varied educational experiences, maintains and encourages academic programs that combine the culturally enriching benefits of travel outside the United States with course work designed to be advantageous to students who participate in these programs.

The largest and oldest of the University's travel-study programs is Tech Rome, combining six weeks of travel and offerings of over 40 courses taken from the University catalog and representing a variety of disciplines.

The newest of the programs, the London Seminar in International Finance and Business, is offered through a consortium in cooperation with the Universities of Colorado, Arkansas, Kansas, Nebraska, Wyoming, Colorado State, and other institutions.

Detailed information on programs is cited below and specific questions can be answered at Tech's Office of Special Programs by calling 1-800-346-TECH.

Tech Rome

Scope and Purpose

Tech Rome is an official, interdisciplinary travel-study program of Louisiana Tech University. It is conducted during the first six weeks of the summer term, from about June 1st to July 10. Academically equivalent to a summer quarter, it allows students to take courses for credit and earn up to 13 hours. Courses are taught by faculty from the main campus, and most major disciplines are represented. The University has sought to combine the culturally enriching benefits of travel with meaningful coursework to offer students an extra dimension in their educational process. With the recent emphasis on general education as the core of any baccalaureate degree, Tech Rome provides students a special opportunity to broaden their educational depth in this formative learning period in their lives.

History

Twenty-nine years ago, Louisiana Tech University sought to begin a study abroad program that would offer Tech students an opportunity to live and study in another country. The designed purpose of such a program was to make available to college students an affordable, comprehensive "tour" that would give them an insight into the daily life of another culture, but one that would be more than a daily living experience. Additionally, Tech sought to integrate cultural immersion with traditional college study to place such a "tour" within the context and framework of a student's normal curriculum at the University.

Tech Rome was the result of those goals. It is a "tour" since travel, with all its culturally enriching benefits, is central to the educational experience of the program. It differs from the traditional concept of a college tour since with Tech Rome, the group does not simply see Europe, moving from one city to another in the course of several days. Tech chose deliberately to base its program in one place both to give students the comfort and security of a home base and to afford them the chance to experience at least one culture in depth.

The city of Rome was an obvious choice for a Tech's overseas campus. It is certainly one of the key historical sites in western civilization. The availability of major works of art and architecture in Rome has few equals in the world. The climate, food, accommodations, and transportation were ideally suited to the University's criteria. And finally, the traditionally friendly reception accorded Americans by contemporary Italians was a major factor in selecting the Eternal City as the home of our Tech campus in Europe.

The many years of conducting the program in Rome has certainly proved the validity of that early decision. Rome has indeed been an ideal location for an overseas campus in terms of students' comfort, interest, and enjoyment, and it has been imminently conducive to scholarship as well.

Facilities

The University has a long-term lease on a facility ideally located within Rome. It is at the foot of the Palatine Hill, at one end of the Circus Maximus, and scant three blocks from the Forum and the Piazza Venezia, the city's commercial center and transportation hub.

Within the complex of buildings, Tech maintains housing and dining accommodations, classrooms, lounge and recreation areas, and offices. Rooms in the hotel-style facility are multiple occupancy with bathrooms in each room.

Being so centrally located, Tech's campus is perfectly suited to allow students in art and history classes to walk to major monuments in the ancient city during allocated class times. Other academic disciplines also take advantage of the campus' proximity to Rome's ancient and modern commercial center. The campus is very near the hub of Rome's public transportation system, allowing students to move efficiently to any part of the city both for study and leisure.

Courses

Forty to fifty courses are offered at each Tech Rome session. Courses are drawn from each of the University's colleges with a course representation broadly selected to allow majors in most curricula to take required or elective coursework. The fine arts and humanities are well represented; there are also courses in business, education, engineering, human ecology, and the sciences. Such popular courses as history, archaeology, and Italian are usually represented.

A normal student load is nine hours, plus a one-hour credit in physical education. Students may qualify for independent study work for additional hours credit. Classes meet daily and extensive use of field trips supplements the lectures.

Travel

The University's package includes round-trip air

transportation to Rome by scheduled air carriers. In Europe, tours are provided in and near Rome, as well as to Naples, Pompeii, Assisi, Ostia, Pisa, and a three-day trip to Florence.

Optional excursions are available at reasonable cost to France, Switzerland, and Greece, as well as to Venice and Capri in Italy. These are planned around weekends and do not constitute part of the academic offering.

Admission

Anyone qualified to enroll at Louisiana Tech University in the summer of a Tech Rome session is eligible for Tech Rome admission. This includes incoming freshmen, students at Louisiana Tech, and visiting students from other universities. It also includes post-baccalaureate adults.

Costs

Tech Rome has always sought to provide students with the lowest program costs consistent with the University's high standards for transportation, tours, and accommodations. Other than University tuition, the cost of the program is solely determined by the price of air travel and the land package. The latter always includes full housing for each day of the program, all meals, all transportation, all tours, tips, and transfers. Tech Rome is one of the lowest-cost programs of its type to be found anywhere.

Tech Rome students may qualify for financial aid assistance since the program is academically equivalent to a summer term.

Enrollment Information

The Tech Rome program is administered by the University's Office of Special Programs. Full information on a summer's program, including courses, costs, and itinerary, is available from mid-November preceding the summer session. Applicants may visit the Special Programs offices housed in the Former Presidents' Home on campus, or they may obtain information by phone (800)346-TECH, or by writing "Tech Rome," Ruston, Louisiana 71272.

London Seminar in International Finance

Louisiana Tech University, in cooperation with the University of Colorado, is pleased to offer interested students an opportunity to study in London, England in mid-summer each year. The program, held during the month of July, consists of approximately forty lectures and discussion sessions plus weekly visits to major financial and political institutions in London.

The principal focus of the Seminar is the integration of the European Community, the effects this will have on the twelve nations of the Community, particularly their financial institutions, and on the United States and the rest of the world.

The program's focus makes it appropriate for any advanced undergraduate or graduate student in finance, international business, economics, political science, or international relations.

The program is limited to thirty students to make it a genuinely interactive seminar. Six semester hours credit are offered to participants. Besides lectures and field trips, a major research paper will be required, and it will be due October 1st. Applicants must meet certain prerequisites, and applications will be accepted on a first-come basis, but only until March 1st.

Interested students may inquire at Louisiana Tech University's Special Programs office, or by writing "London Seminar," Special Programs, P. O. Box 3172, Louisiana Tech University, 71272 or by calling 1-800-346-TECH.

Division of Admissions, Orientation, Basic and Career Studies

Administration

Jan B. Albritton, Director

The Division of Admissions, Orientation, Basic and Career Studies serves as a total academic support unit for entering freshmen. While entering freshmen may choose to go directly into one of the six academic colleges on campus, students who are undecided about a major enter Basic and Career Studies. Academic advising, personal counseling, interest testing, and decision making workshops are available to assist students in making academic decisions. Students may also enter Basic and Career Studies when considering a change in majors.

At any given time, should a student fail to meet the specific requirements of a college, the student may be placed into Basic and Career Studies until grade point and course requirements are met.

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 beginning freshmen who have graduated in May of that calendar year and 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 at the beginning of the Fall Quarter), and (5) to acquaint parents with University standards for students and provide an overview of Louisiana Tech University.

Special orientation sessions for transfer students are also conducted.

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 18 or less will be required to take a diagnostic test in English, and a student who has a Reading ACT score of 18 or less will be required to take a diagnostic test in reading. A student who has a Math ACT score of 19 or less will be eligible to enroll in Math 099 (Developmental Math). If such a student desires to bypass Math 099, Placement Exam A will be required. A satisfactory score on Exam A will place the student in Math 110 (Algebra for College Students). 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 catalog number beginning with zero (0) (i.e., English 099 etc.). These courses are open only to those students who place in them by examination.

Scholarships

Louisiana Tech offers scholarship awards through the Admissions Office, as well as through the individual academic colleges and departments. The deadline for applications is December 1 prior to the year of enrollment. The General Scholarship form qualifies you for all types of scholarships listed below and those offered through the academic areas.

Scholarship Type	Criteria	Amount	Number Awarded
Presidential Scholar	Minimum 32 ACT; top 2%, GPA, activities, and personal interview.	Full tuition; on-campus room and board.	25/year
National Merit Scholar	National Merit Finalist, list Tech as first choice.	Full tuition, on-campus room and board; participation in the Summer Travel Scholarship Program in Rome.	Unlimited
Centennial Scholar	Minimum 27 ACT; class rank, GPA, activities, and personal interview.	Full Tuition	100/year
University of Louisiana System	Minimum 27 ACT; class rank, GPA, activities, and personal interview.	Full Tuition	25/year
Outstanding Student	Minimum 27 ACT; class rank, GPA, activities, and personal interview.	Range from $500 - $1500/year	Varies
Alumni Dozen	At least one parent is Tech graduate; ACT, class rank, GPA, and activities.	$1000/freshman year	Twelve

The following programs are Louisiana Scholarship Programs. Information for these programs may be obtained by contacting: Scholarship/Grant Division, Office of Student Financial Assistance, P. O. Box 91202, Baton Rouge, LA 70821-9202. The deadline for the Education Majors Scholarship is March 30 and April 1 for the other scholarships.

Scholarship Type	Description	Amount	Number Awarded
T. H. Harris	General Scholarship Program; apply through the Free Application for Federal Student Aid. Awards vary.	Varies	Varies
Tuition Assistance Plan	General Scholarship Program; apply through the Free Application for Federal Student Aid.	Tuition	Varies
Rockefeller	Forestry and Wildlife Majors; apply through the Free Application for Federal Student Aid.	$1,000/per year	Varies
Paul Douglas (Congressional Teachers)	Education Majors--apply through the Free Application for Federal Student Aid.	$5,000/per year	Varies
Education Majors	This is awarded through the Louisiana Department of Education. Applications are available in the Financial Aid Office, the College of Education, and the College of Human Ecology.	$2,000/per year	Varies

Other Sources: Parent's employer, private business, churches, and civic groups. The University Library Information Desk is an excellent source of scholarship information.

Department of Air Force Aerospace Studies

Col. Robert Mims
Professor of Air Force Aerospace Studies

General: Air Force ROTC is open to all students in any major pursuing a bachelor's, master's, or doctorate degree. The student must complete at least a four-year bachelor's degree, be a full-time student, be a U. S. citizen in the final two years of Air Force ROTC and meet all military retention standards for fitness, GPA, and moral character.

Purpose: The MISSION of the Air Force ROTC is to provide instruction and experience to all cadets in a diversified university environment so they can graduate with the knowledge, character and motivation essential to becoming leaders in the world's greatest and most respected Air Force. Individuals who successfully complete either the two- or four- year program will be commissioned as Second Lieutenants in the U. S. Air Force.

History: Air Force Reserve Officer Training Corps (ROTC) came to Louisiana Tech in 1949. Since then over 1000 Tech graduates have been commissioned in the Air Force as Second Lieutenants. Many of these graduates have distinguished themselves in their careers as Air Force officers and leaders.

Objectives: Air Force ROTC Detachment 305 has three objectives: 1) To recruit, select, educate, and commission quality 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, pride, discipline and responsibility, and to develop his/her potential as a manager and leader.

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

Application Requirements: There is no application procedure for the four-year program. Students may simply register for Air Force ROTC in the same manner and at the same time they register for other college courses. Any student wishing to apply for the two-year program should contact one of the active duty officers on the 14th floor of Wyly Tower.

Four-Year Program: This is divided into two distinct categories–the General Military Course (GMC) and the Professional Office Course (POC). Any university student may enroll in the General Military Course (GMC) (the first two years) in the same manner and at the same time as other courses. Enrolling in the GMC incurs no military obligation unless on scholarship status. They may then compete for entry into the Professional Officer Course (POC) during the last two years of college. Selection into the POC is highly competitive and is based upon qualification after an Air Force medical examination, scores achieved on the Air Force Officer Qualifying Test (AFOQT), college major, grade-point-average, physical fitness test, successful completion of a Field Training course at an Air Force base, and the recommendation of the Professor of Aerospace Studies.

Two-Year Program: The Two-Year Program consists of the Professional Officer Course (POC)--the last two years of the Four-Year Program. It is designed to provide greater flexibility to meet the needs of students desiring Air Force opportunities. The basic requirement is that applicants have two academic years remaining at either the undergraduate or graduate levels, or a combination of both.

After being nominated by the Professor of Aerospace Studies, applicants seeking enrollment in the two-year program must pass an Air Force physical exam. They are also evaluated on grade-point-average, scores achieved on the AFOQT, physical fitness, and a personal interview.

Since the processing procedure must be completed in advance of intended enrollment, interested students must apply early in the academic year preceding the fall term in which they intend to enter the program. Application should be made in writing or by a personal visit to the office on the 14th floor of Wyly Tower.

Requirements for Admission: General Military Course (freshmen and sophomores); Enrollment requirements are as follows: (1) possess good moral character, (2) must not turn 30 years of age before 1 July in the year of graduation and commissioning (may be waived to 35 for prior military service; not more than 26 1/2 years at graduation and commissioning if entering flight training, (3) be medically qualified, (4) 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 (Students in the final two years of AFROTC): 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 a student be a U. S. citizen 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, be in good standing in the institution, and be recommended by the Professor of Air Force Aerospace Studies. Those enrolled in the POC will sign an oath of allegiance to the U.S. and receive a monthly stipend.

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 degree program. Students should consult with the dean of their particular college if in doubt of the amount of credit allowed.

Leadership Laboratory Training: In addition to academic training, enrollment in the corresponding Leadership Laboratory is open to students who are members of the Reserve Officer Training Corps or are eligible to pursue a commission as determined by the Professor of Aerospace Studies. Leadership Laboratory consists of physical, military, and leadership training including the operation of the Cadet Corps. The Cadet Corps is comprised exclusively

of cadets in the AFROTC program. The Corps is cadet directed and operated. 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.

Field Training: All cadets must complete summer Field Training which consists of academic work, orientation to the Air Force environment and traditional military training. It also includes a close look at day-to-day operation of the Air Force and may include orientation flights in Air Force aircraft. Cadets in the two-year program must, by law, attend six weeks of Field Training prior to POC entry. Four-year program cadets attend four weeks of Field Training, normally between their sophomore and junior years. Field Training is conducted at an Air Force Base with round trip transportation paid between the cadet's home and Field Training. Cadets will receive pay based on the pay grade of E-3.

Flight Screening Program: Junior members selected to enter pilot training are required to complete an enhanced flight screening program (EFSP). This program affords cadets the opportunity to solo in light aircraft and provides approximately 20 hours of total time at government expense. Cadets will attend FSP between their junior and senior years at an Air Force base. Pay and travel will be the same as Field Training.

Requirements for Commission: Upon completion of AFROTC Professional Officers Course and receipt of a baccalaureate degree, cadets are eligible for commission as Second Lieutenants in the United States Air Force.

Distinguished Air Force ROTC Graduates: Up to 15 percent 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 graduate education at Air Force expense. All officers have the opportunity for graduate education.

Monetary Allowance While in the POC: All POC members receive a tax-free allowance during this two-year course of $150 per month.

College Scholarship Program: Each year the Air Force awards a number of four, three, and two-year scholarships on a competitive basis to highly qualified students. Scholarships provide full tuition, most laboratory, textbook, and incidental fees, and out-of-state fees if applicable, plus $150 per month for 10 months each year the scholarship is in effect. Louisiana Tech supplements high school AFROTC scholarship winners with full room and board for all four years regardless of the length of their scholarship as an incentive for coming to Tech. A $2,000 per year POC Incentive Scholarship is offered to junior and senior cadets not already on an AFROTC college scholarship in any four year degree program, but they must not turn 25 years of age before 1 July of the year of commissioning. They must also be a full-time student, meet POC entry and retention standards, have a 2.5 cumulative GPA and maintain a 2.35 term GPA, and meet the AFROTC scholarship requirements.

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 organizations 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-Silver Wings: Angel Flight/Silver Wings is a national honorary community service organization open to any student who meets the flight's qualifications. These patriotic students work closely with the Arnold Air Society on community service projects such as Habitat for Humanity, POW/MIA recognition day, and Veteran's Day. They support Cadet Corps activities and promote the USAF and AFROTC. Members participate in area and national conventions or conclaves where they are given the opportunity to travel nationwide. There is no requirement to be a cadet or member of ROTC to join and no commitment is incurred.

Honor Guard: The Valkyrie Honor Guard is a military group composed of outstanding cadets who perform a variety of ceremonial functions. Those include providing a color guard for campus and civic activities, giving precision drill exhibitions, and competing at the national level in drill competitions at universities such as Texas A&M and the USAF Academy.

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 quests.

Intramural Sports: AFROTC sponsors teams and individuals in all campus sports events.

Housing: The University has designated the 10th floor of Neilson (for males) and the 3rd floor of Harper (for females) as AFROTC floors. All cadets who reside on campus are encouraged to live on these floors but the choice to do so is strictly voluntary.

Northeast Louisiana University (NLU) Students: Air Force ROTC is open to NLU students with all tuition fees waived by Tech provided they take only Air Force ROTC courses and are approved by the Professor of Aerospace Studies.

Aerospace Studies Curriculum Requirements

Freshmen Year	Semester Hours
Aerospace Science 125, 126, 127	3
Leadership Lab 155, 156, 157	
English 101 (A. F. Scholarship Recipients)	3
Sophomore Year	
Aerospace Science 225, 226, 227	3
Leadership Lab 255, 256, 257	
Mathematics 110 or higher	3
Junior Year/Senior Year	
Aerospace Science 331, 332, 333	6
Leadership Lab 351, 352, 353	
Aerospace Science 431, 432, 433	6
Leadership Lab 451, 452, 453 (Graduate with Academic Degree)	

College of Administration and Business

Officers of Instruction

John T. Emery, Dean
R. Anthony Inman, Associate Dean for Graduate Affairs and Academic Research
Frank M. Busch, Assistant Dean for Undergraduate Affairs
James R. Michael, Director, Research Division
Thomas J. Phillips, Jr., Director, School of Professional Accountancy
Thomas L. Means, Head, Department of Business Analysis and Communication
Dwight C. Anderson, Head, Department of Economics and Finance
Gene Brown, Head, Department of Management and Marketing

Accreditation

The undergraduate and masters business programs offered by the College of Administration and Business, Louisiana Tech University, are accredited by the American Assembly of Collegiate Schools of Business (AACSB). Also, the three programs offered by the College in Accounting - BS, MPA, and MBA (Concentration in Accounting) are accredited by 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. A two-year program, the Business Technology curriculum leads to an Associate of Science degree.

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 Business Administration Curriculum, the Business Economics Curriculum, the Finance Curriculum, the Management Curriculum, and the Marketing 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 1940, the School of Business Administration was created by the Louisiana State Board of Education. In 1970, Tech was designated as a University and the School became the College of Administration and Business.

Purpose

The purpose of Louisiana Tech University is to provide excellent educational opportunities for qualified students. This includes strong baccalaureate programs and an expanding commitment to graduate-level education, as reflected in diverse masters degree programs and selected doctoral degree programs. The University's purpose is implemented through instruction, research, and service.

Consistent with Louisiana Tech's purpose, the College of Administration and Business recognizes as its primary role meeting the educational needs of its undergraduates and graduate students. Additionally, the College recognizes an expanding commitment to advance knowledge in business through theoretical and applied research and the objective of providing selected services to the public - such as research information, consulting, participation in professional societies, and in-service educational opportunities. Most of the College's activities are pursued in a traditional environment of a predominantly fulltime faculty and student body in a non-urban setting.

Research Division

The activities of the Research Division involve public service and contract research.

Center for Economic Education

The Center for Economic Education, is affiliated with the Louisiana Council and the National Council on Economic Education. The Center's primary purpose is to provide a program for increasing the level of economic understanding in its service area.

The Central Bank-Ruston 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 which is now Central Bank-Ruston.

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

The Harold J. Smolinski Chair in Accounting

Professor Harold J. Smolinski served as a faculty member during the forty-four years from 1941 until his retirement in 1985 and was the first Director of the School of Professional Accountancy.

To honor his service to Louisiana Tech University, a $1 million endowed chair has been funded by alumni and friends of the School and the Louisiana Trust Fund for Eminent Scholars.

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.

Rural Development Center

The Rural Development Center of Louisiana Tech University serves as a clearinghouse for information and outreach activities in response to development needs in rural areas. The purpose of the Rural Development Center is to be an advocate for rural development, to be a focal point to which needs may be identified and assistance requested, and to be a clearinghouse through which relevant information may be disseminated.

For additional information, contact: Dr. Bob Owens, Director, Rural Development Center, Louisiana Tech University, P. O. Box 10318, Ruston, LA, 71272.

Center for Real Estate Studies

The Louisiana Real Estate Commission's 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.

Scholarships

For information about scholarships available to all Louisiana Tech students, contact the Division of Admissions, Basic and Career Studies. 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, 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.

Lawson L. Swearingen—Commercial Union Assurance Companies

Commercial Union Insurance Companies, headquartered in Boston, Massachusetts, with offices located in Ruston, Louisiana, established in 1981 a $25,000 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.

Loraine 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. The scholarships are awarded annually to outstanding students pursuing curricula in the Department of Business Analysis and Communication.

Alvora Morris Edens Scholarship

The scholarship was named in memory of the wife of Dr. Frank N. Edens, Professor of Management, retired. 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 $30,000 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 $6,000 during a four year program in the form of $1500 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, established a recognition endowment award in the CAB in honor of Charles L. Wingfield. Mr. Wingfield is a 1948 business graduate of Louisiana Tech. He adds to the fund annually and the endowment is now $47,000.

David L. Gloer

The Beta Psi Chapter of Delta Sigma Pi has established a scholarship award 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.

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 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 $12,600 endowment fund in his honor for business scholarships. The late Mr. Clark was a 1914 business graduate of Louisiana Tech and was a prominent banker and land owner in Strong, Arkansas.

The William A. and Virginia Lomax Marbury Endowment for Business Scholarships

Mr. and Mrs. William Marbury have established a $30,400 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 $10,100 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 $85,500 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 is owner of Walker Industrial Plastics. 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.

The George Curtis and Esther Belle Mosely Taylor Endowment for Business Scholarships

Mr. and Mrs. Jack T. Taylor, Jr. have established an endowed scholarship in the amount of $26,200 for business students in honor of his grandparents. Mr. Taylor is a partner in the Houston office of KPMG Peat Marwick. He joined the company after graduating with a degree in Accounting in 1973 from Louisiana Tech University.

Edward L. Moyers Scholarship

MidSouth Corporation, headquartered in Jackson, Mississippi, has established a $106,000 recognition endowment in the CAB in honor of its past President and Chief Executive Officer, Edward L. Moyers. Mr. Moyers is a 1955 business graduate of Louisiana Tech.

The Louisiana Real Estate Commission Scholarship

The Louisiana Real Estate Commission, through the Center for Real Estate Studies, awards several scholarships to students interested in Real Estate careers. The scholarships, which are administered by the Department of Economics and Finance, are awarded to eligible students on the basis of scholarship, career interest, recommendations and financial need.

Organizations

Accounting Society

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

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 idea of service as the basis of the accounting profession; to promote the study of accountancy and its highest ethical standards; 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 assessed each quarter, and the assessment is an official charge recognized by the College.

Data Processing Management Association

The Data Processing Management Association chartered on January 23, 1973, is a student organization affiliated with the National Data Processing Management Association. 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. 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.

Marketing Club

The Louisiana Tech Marketing Club is a collegiate chapter of the American Marketing Association, the international organization for professional marketers. The club is open to any student interested in marketing; and the goals are to have personal, scholarly, and professional development of its members and to promote friendly relations among students, faculty, and the business community.

Society for Human Resource Management

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.

Counseling Program

Each undergraduate student is assigned to a CAB faculty member who is the student's curricular adviser. 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 in which courses to take in future quarters during established early registration periods, and are available during posted conference hours to advise the students on academic and career matters.

Business students planning to participate in the summer Rome program should contact the Director of Undergraduate Studies, CAB, early in their program to determine what courses will be available in Rome. For further information see the 'Tech Rome' section of the University's Bulletin.

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 at the beginning of each quarter 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, it is recommended that the student schedule no more than 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. Most 300 and 400 level CAB courses are open only to students with the proper foundation courses and academic background. For further information, contact the appropriate head/director of the academic unit that offers the courses.

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 student's 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 in the curricula. Any courses taken which are not specified in the student's program and are not specifically included in the electives requirements 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 by the student's academic head/director and the CAB undergraduate division director. In general, course substitutions are discouraged, including electives, and must have a sound justification to be approved.

Requirements for Business Minors

Any student pursuing an undergraduate major may earn a minor in one of the following fields.

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 the following 21 hours*: Accounting 201, 202**, Economics 215, Finance 318, Management 311, Management 333, and Marketing 300.

*Students are presumed to have had college level work in Quantitative Analysis 390 or the equivalent and Quantitative Analysis 233 or the equivalent. **Students planning to pursue a specialty in accounting must also earn credit in Accounting 301, 303, 304, 305, 307, 308, 413, 414, Business Law 255 and Business Law 410.

Minor in Accounting: Accounting 201, 202, 303, 304, 305, 307, 308, 413,and 414; total 27 semester hours. Students in other colleges may not major in accounting.

Minor in Management Information Systems: Business Communication 435; Management Information Systems 101, 330, 339, 423, 435; Quantitative Analysis 233; 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 201, 202; Finance 318; and nine other hours of 300 or 400 level Finance courses to complete 21 semester hours.

Minor in General Business: Accounting 201, 202; Economics 215; Finance 318; Management 311; Marketing 300; and a 3 hour 300 or 400 level CAB elective to complete 21 semester hours.

Minor in Management, including Human Resources and Production/Operations 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.

Students enrolled in other colleges may pursue a second major (see page 28) or a minor in the College of Administration and Business. However, students in other colleges pursuing a minor or taking electives in the CAB are limited to a maximum of 27 hours of business courses.

Most 300 and 400 level CAB courses are open only to students with the proper foundation courses and academic background. For further information contact the appropriate head/director of the academic unit that offers the courses.

Undergraduate Programs

Associate Degree Program - Business Technology Curriculum

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
Humanities Elective*	3
Management 105	3
Mathematics 110, 125	6
Psychology 102 or Sociology 201	3
Social Science Elective**	3
Speech 110	3
	30
Sophomore Year	
Accounting 201, 202	6
Economics 215	3
Management 201	3
Marketing 235	3
Natural Science Elective ***	3
Management Information Systems 101	3
Restricted CAB electives****	9
	30
TOTAL SEMESTER HOURS	60

*The humanities elective must be selected from one of the following: History, Literature, Speech Communication, Foreign Languages, Philosophy and Religious Studies.

**The social science elective must be selected from one of the following: Geography, Anthropology, Political Science, Psychology, and Sociology.

***The natural science elective must be selected from one of the following: Biological Sciences 101, 102, Chemistry 130, Geology 111, and Physics 205.

****Nine hours to be selected from Business Law 255, 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.

Associate Degree Graduation Requirements

See "Graduation Requirements" for an Associate Degree.

Bachelor Degree Programs

Six baccalaureate degree curricula are offered by the College of Administration and Business: Accounting; Business Administration (with several options or specialties available from the Business Analysis and Communication Department); Business Economics; Finance; Management (with several options or specialties available from the Management and Marketing Department) and Marketing. The course requirements for these four-year programs are given in the following pages. (Note: The six curricula are given in alphabetical order with several pages of options being listed after the Business Administration curriculum and the Management curriculum).

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 designate 'General Business Administration in the Business Analysis and Communications Department' when they register.

All six 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.

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) for future growth and development within the accounting profession; (2) for advanced studies in accounting and other business fields, and (3) to provide the educational foundation for future advancement to administrative and leadership positions.

The School of Professional Accountancy was established by the University of Louisiana System and the Louisiana Board of Regents in 1976. The undergraduate and master degree programs offered by the School are accredited by the American Assembly of Collegiate Schools of Business (AACSB). The School was a charter member of the Federation of Schools of Accountancy and currently holds full membership in this organization.

A minimum acceptable grade of "C" must be earned in all undergraduate accounting courses. Students may not enroll in higher level accounting courses until this minimum in previous courses has been met. Students enrolling in the accounting program will normally be allowed to schedule a maximum of two accounting courses simultaneously in a single quarter.

Transfer students electing this curriculum 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.

IMPORTANT: Many states are increasing the education

requirements for eligibility to sit for the Certified Public Accountant (CPA) examination. For example, Louisiana's statutes, effective January 1, 1997, will require a baccalaureate degree and minimum of 150 semester hours of credit with such adequate concentration in the area of accounting as the state board of accountancy may prescribe.

Pre-Professional Curriculum

Freshman Year	Semester Hours
English 101, 102	6
Free Non-CAB Elective	3
History Elective (100 or 200 level)	3
Management Information Systems 101	3
Mathematics 110 (or 111)	3
Mathematics 125 (or 222)	3
Natural Science Elective*	6
Psychology 102 or Sociology 201	3
	30
Sophomore Year	
Accounting 201, 202	6
Accounting 301	3
Art 290 or HPE 280 or Music 290 or Speech 290	3
Business Law 255	3
Economics 201, 202	6
English 201 or 202	3
Natural Science Elective*	3
Political Science 201	3
Quantitative Analysis 233	3
	33

*Nine (9) hours of natural science are required in the curriculum. Six (6) of the hours must be selected from a two-quarter sequence. Also, the hours must include both physical and biological sciences. Courses selected must be from the following: Physical Sciences - Chemistry 130, 131; Geology 111, 112, 200; Physics 205, 206, 207. Biological Sciences - Biological Sciences 101, 102.

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 and scores from the Graduate Management Admission Test (GMAT) and meet established GPA requirements.

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	12
Business Communications 305	3
Economics 312	3
English 303 or 336	3
Finance 318	3
Management 311	3
Marketing 300	3
Speech 377	3
	33
Senior Year	
Accounting 308, 413, 414	9
Accounting Electives	6
Humanities Elective**	3
Economics 408 or 409 or 410	3
Management 333, 495	6
Management Information Systems 435	3
	30
TOTAL FOR BACHELOR'S DEGREE	126

**The humanities elective must be selected from one of the following: History, Literature, Speech Communication, Foreign Languages (above the introductory level), Philosophy, Religious Studies and English 303.

Graduate Year	
Accounting 506 or 507, 508, 513, 517, 521	15
Accounting Electives*	6
CAB Electives (2 500-level non-accounting)	6
Business Law 410	3
	30
TOTAL FOR MPA DEGREE	156

*Accounting 505 cannot be taken as an elective.

Department of Business Analysis and Communication

Business Administration Curriculum

The Business Administration Curriculum is designed for those students seeking administrative careers. Such a career requires the flexibility to serve in many types of organizations and various functional areas. General administrators are required to have a broad background in all functional areas of business, must be able to formulate and communicate their opportunities, and must apply the proper data and models to arrive at business decisions. The Department of Business Analysis and Communication therefore offers three options directed at different interests in the administrative area.

The three options include the Business Analysis option, the General Business Administration option, and the Management Information Systems option. The student may select an option at any time but should normally have it chosen by the beginning of the junior year.

Freshman Year	Semester Hours
Economics 100 or 200 or Management 105*	3
English 101, 102	6
Free Non-CAB Elective	3
History Elective (100 or 200 level)	3
Mathematics 110, 125 or 111, 222	6
Natural Science Elective**	3
Psychology 102 or Sociology 201	3
Management Information Systems 101	3
	30
Sophomore Year	
Accounting 201, 202	6
Business Law 255	3
Economics 201, 202	6
English 201 or 202	3
Humanities Elective***	3
Natural Science Electives**	6
Political Science 201	3
Quantitative Analysis 233	3
	33
Junior Year	
Art 290 or HPE 280 or Music 290 or Speech 290	3
Business Communication 305	3
CAB Elective (300 or 400 level)	3
Economics 312	3

English 303 or 332 or 336	3
Finance 318	3
Management 311, 333	6
Marketing 300	3
Speech 377	3
	30
Senior Year	
CAB Elective (300 or 400 level)	3
CAB Elective (300 or 400 level)-GBA & B Anal Majors Only or Business Communication 435-MIS Majors Only	3
Management 495	3
Option Courses****	21
Management Information Systems 435	3
	33
TOTAL FOR CURRICULUM	126

*Students with an ACT composite score of 25 or greater may substitute a 300 or 400 level CAB elective in lieu of Management 105.

**Nine (9) hours of natural science are required in the curriculum. Six (6) of the hours must be selected from a two-quarter sequence. Also, the hours must include both physical and biological sciences. Courses selected must be from the following: Physical Science - Chemistry 130, 131; Geology 111, 112, 200; Physics 205, 206, 207; Biological Sciences - Biological Sciences 101, 102.

***The humanities elective must be selected from one of the following: History, Literature, Speech Communication, Foreign Languages (above the introductory level), Philosophy, Religious Studies, and English 303.

****See option selected for required courses.

Options Offered in the Department of Business Analysis and Communication

Business Analysis 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, statistics, and information systems. The desirability of electing this option is underscored by the steadily increasing importance of mathematical modeling in the decision-making process. Both manufacturing and service industries require expertise in mathematical modeling to improve their profit stature. Graduates of this option should look for jobs in production, facility, and distribution planning. This option also prepares one for pursuing a quantitative analysis specialty in an MBA or DBA program.

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

	Semester Hours
Management 475	3
Management Information Systems 330, 339	6
Quantitative Analysis 430, 431, 432	9
Management Information Systems 423 or Management 476 or Business Communication 435	3
TOTAL	21

General Business Administration Option

The modern age with its rapid changes has made it essential that the future business administrator be broadly educated in order to adjust and adapt themselves to changing practices. 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. The G.B.A. option is tailored around 21 hours of broad education for business. The program is appropriate for non-technical entry level jobs in the marketplace and an excellent background for students planning certain advanced degrees in business and law.

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

	Semester Hours
CAB Elective*	6
Economics Elective*	3
Finance Elective*	3
Management Elective*	3
Marketing Elective*	3
Quantitative Analysis 430	3
TOTAL	21

*300 or 400 level courses.

Management Information Systems Option

This group of courses is designed to prepare students in information systems. Entry level jobs in this area include sales positions with vendors of computer equipment and programmer/analyst positions with most major corporations. The option provides students with an understanding of the analysis of business data, knowledge of information system technology, and communication skills.

Listed below are the option courses typically taken to complete this program.*

	Semester Hours
Management Information Systems 330, 339, 423, 436, 443, 445	18
Quantitative Analysis 430 or 431 or 432	3
TOTAL	21

*Students may choose the Management Information Systems Option with a concentration in Computer Science. This concentration requires: a) the Math 111 and 222 sequence in lieu of the Math 110 and 125 sequence and b) substituting for the free non-CAB elective, two CAB electives, Management 105, and the elective choice of Quantitative Analysis 430, 431, or 432 with the addition of Computer Science 120, 210 (formerly CS 110), 220, 230, and 251.

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 or Management 105*	3
English 101, 102	6
Free Non-CAB Elective	3
History Elective (100 or 200 level)	3
Mathematics 110, 125 or 111, 222	6
Natural Science Elective**	3
Psychology 102 or Sociology 201	3
Management Information Systems 101	3
	30
Sophomore Year	
Accounting 201, 202	6
Business Law 255	3
Economics 201, 202	6
English 201 or 202	3
Humanities Elective***	3
Natural Science Electives**	6
Political Science 201	3
Quantitative Analysis 233	3
	33
Junior Year	
Art 290 or HPE 280 or Music 290 or Speech 290	3
Business Communication 305	3
CAB Elective (300 or 400 level)	3
Economics 312	3
English 303 or 332 or 336	3
Finance 318	3
Management 311, 333	6
Marketing 300	3
Speech 377	3
	30
Senior Year	
CAB Electives (300 or 400 level)	12
Economics 408, 437	6
Economics Electives (approved by advisor)	9
Management 495	3
Management Information Systems 435	3
	33
TOTAL FOR CURRICULUM	126

*Students with an ACT composite score of 25 or greater may substitute a 300 or 400 level CAB elective in lieu of Management 105.

**Nine (9) hours of natural science are required in the curriculum. Six (6) of the hours must be selected from a two-quarter sequence. Also, the hours must include both physical and biological sciences. Courses selected must be from the following: Physical Sciences - Chemistry 130, 131, Geology 111, 112, 200; Physics 205, 206, 207. Biological Sciences - Biological Sciences 101, 102.

***The humanities elective must be selected from one of the following: History, Literature, Speech Communication, Foreign Languages (above the introductory level), Philosophy, Religious Studies, and English 303.

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. Students who wish to pursue a concentration in managerial finance, banking/investments, insurance, or real estate should consult with their academic advisor about course selection. 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.

Transfer students electing the Finance curriculum will be required to take at least twelve (12) semester hours in finance courses at Louisiana Tech. Any student currently enrolled in the Finance curriculum may not take a finance course at another institution without the prior approval of the department head.

Freshman Year	Semester Hours
Economics 100 or 200 or Management 105*	3
English 101, 102	6
Free Non-CAB Elective	3
History Elective (100 or 200 level)	3
Mathematics 110, 125 or 111, 222	6
Natural Science Elective**	3
Psychology 102 or Sociology 201	3
Management Information Systems 101	3
	30
Sophomore Year	
Accounting 201, 202	6
Business Law 255	3
Economics 201, 202	6
English 201 or 202	3
Humanities Elective ***	3
Natural Science Electives**	6
Political Science 201	3
Quantitative Analysis 233	3
	33
Junior Year	
Art 290 or HPE 280 or Music 290 or Speech 290	3
Business Communication 305	3
CAB Elective (300 or 400 level)	3
Economics 312	3
English 303 or 332 or 336	3
Finance 318, 319	6
Management 311, 333	6
Marketing 300	3
Speech 377	3
	33
Senior Year	
CAB Electives (300 or 400 level)	9
Finance Electives (300 or 400 level)	9
Finance 414, 425	6
Management 495	3
Management Information Systems 435	3
	30
TOTAL FOR CURRICULUM	126

*Students with an ACT composite score of 25 or greater may substitute a 300 or 400 level CAB elective in lieu of Management 105.

**Nine (9) hours of natural science are required in the curriculum. Six (6) of the hours must be selected from a two-quarter sequence.

Also, the hours must include both physical and biological sciences. Courses selected must be from the following: Physical Sciences - Chemistry 130, 131; Geology 111, 112, 200; Physics 205, 206, 207. Biological Sciences - Biological Sciences 101, 102.

***The humanities elective must be selected from one of the following: History, Literature, Speech Communication, Foreign Languages (above the introductory level), Philosophy, Religious Studies, and English 303.

Department of Management and Marketing

Management Curriculum

Managers are found at every level and in every kind of private and public organization. Managers all have in common the responsibility of helping their organizations meet their objectives.

A career in management is ideal for those who possess good leadership qualities and have the ability to work well with other people. Individuals interested in management should be creative, outgoing, and have the ability to guide and motivate people toward common goals.

Four options are available to the student with an interest in management. These include Business Management and Entrepreneurship, Human Resources Management, Pre-Law, and Production/Operations Management.

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 or Management 105*	3
English 101, 102	6
Free Non-CAB Elective	3
History Elective (100 or 200 level)	3
Mathematics 110, 125 or 111, 222	6
Natural Science Elective**	3
Psychology 102 or Sociology 201	3
Management Information Systems 101	3
	30
Sophomore Year	
Accounting 201, 202	6
Business Law 255	3
Economics 201, 202	6
English 201 or 202	3
Humanities Elective***	3
Natural Science Electives**	6
Political Science 201	3
Quantitative Analysis 233	3
	33
Junior Year	
Art 290 or HPE 280 or Music 290 or Speech 290	3
Business Communication 305	3
CAB Elective (300 or 400 level)	3
Economics 312	3
English 303 or 332 or 336	3
Finance 318	3
Management 311, 333	6
Marketing 300	3
Speech 377	3
	30
Senior Year	
CAB Electives (300 or 400 level)	6
Management 495	3
Option Courses****	21
Management Information Systems 435	3
	33
TOTAL FOR CURRICULUM	126

*Students with an ACT composite score of 25 or greater may substitute a 300 or 400 level CAB Elective in lieu of Management 105.

**Nine (9) hours of natural science are required in the curriculum. Six (6) of the hours must be selected from a two-quarter sequence. Also, the hours must include both physical and biological sciences. Courses selected must be from the following: Physical Sciences - Chemistry 130, 131; Geology 111, 112, 200; Physics 205, 206, 207. Biological Sciences - Biological Sciences 101, 102.

***The humanities elective must be selected from one of the following: History, Literature, Speech Communication, Foreign Languages (above the introductory level), Philosophy, Religious Studies, and English 303.

****See option selected for required courses.

Business Management and Entrepreneurship Option

This option is designed for the student who desires training in general business management. The business management option concentrates on management courses such as personnel, sales, small businesses, and industrial management. Other courses include the legal aspects of government and business, marketing research, and managerial economics.

Students electing this option often seek management trainee positions with established firms or governmental bodies. Other students use their training in this curriculum to become an entrepreneur and start a business of their own. The following courses will normally be elected to satisfy this option.

	Semester Hours
Management 340, 400, 470, 475, 485	15
Marketing 482	3
Quantitative Analysis 430 or Management 476	3
Total	21

Human Resources Management Option

The Human Resources Management option is often referred to as personnel management or industrial relations. Job opportunities for personnel specialists exist throughout the country in both the private and public sector. The option courses normally taken include:

	Semester Hours
Finance 435	3
Management 419, 447, 470, 472, 478	15
Management Elective (300 or 400 level)	3
TOTAL	21

Pre-Law Option

The Pre-Law option is designed for those students who are interested in a legal career and are planning to enter law school. Under this option, the legal aspects and environment of property, business and government, and labor and personnel law, in addition to courses in management, finance, and tax are studied.

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. A student

interested in a legal career of advising business and the corporate world may enroll in the Pre-Law option.

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 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
Accounting 307 or Economics 410	3
Business Law 356, 441, 445	9
English 423 or Philosophy 201 or 251	3
Finance 414	3
Speech 200	3
TOTAL	21

Production/Operations Management Option

Formerly the 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 production manager's job is to direct and coordinate ways of improving existing production facilities, to expand and modify these facilities as needed, to obtain optimum efficiency and economy of operations, and maximize profits.

This curriculum prepares graduates for jobs in production planning and control, quality control, methods analysis, materials management, and related areas. Listed below are the specialized courses for this option.

	Semester Hours
Industrial Engineering 409	3
Management Electives (300 or 400 level)	6
Management 475, 476	6
Quantitative Analysis 430, 431	6
TOTAL	21

Marketing Curriculum

In the past several decades, marketing has become the focal point of many business operations.

The marketing curriculum 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, public relations, and marketing research.

This curriculum should provide the student with a body of knowledge pertaining to marketing principles, decision-making, and practices. It should also provide the student with the opportunity for flexibility in career choices.

The courses to be taken in this curriculum include:

Freshman Year	Semester Hours
Economics 100 or 200 or Management 105*	3
English 101, 102	6
Free Non-CAB Elective	3
History Elective (100 or 200 level)	3
Mathematics 110, 125, or 111, 222	6
Natural Science Elective**	3
Psychology 102 or Sociology 201	3
Management Information Systems 101	3
	30
Sophomore Year	
Accounting 201, 202	6
Business Law 255	3
Economics 201, 202	6
English 201 or 202	3
Humanities Elective***	3
Natural Science Electives**	6
Political Science 201	3
Quantitative Analysis 233	3
	33
Junior Year	
Art 290 or HPE 280 or Music 290 or Speech 290	3
Business Communication 305	3
CAB Elective (300 or 400 level)	3
Economics 312	3
English 303 or 332 or 336	3
Finance 318	3
Management 311, 333	6
Marketing 300	3
Speech 377	3
	30
Senior Year	
CAB Electives (300 or 400 level)	6
Management 495	3
Marketing 307, 320, 420, 425, 435, 485 (Any 15 hours)	15
Marketing 473, 482	6
Management Information Systems 435	3
	33
TOTAL FOR CURRICULUM	126

*Students with an ACT composite score of 25 or greater may substitute a 300 or 400 level CAB Elective in lieu of Management 105.

**Nine (9) hours of natural sciences are required in the curriculum. Six (6) of the hours must be selected from a two-quarter sequence. Also, the hours must include both physical and biological sciences. Courses selected must be from the following: Physical Sciences - Chemistry 130, 131; Geology 111, 112, 200; Physics 205, 206, 207. Biological Sciences - Biological Sciences 101, 102.

***The humanities elective must be selected from one of the following: History, Literature, Speech Communication, Foreign Languages (above the introductory level), Philosophy, Religious Studies, and English 303.

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

John C. Trisler, Dean
Edward C. Jacobs, Associate Dean
Philip Castille, Head, Department of English and Interim Head, Department of Foreign Languages
Gene A. Crowder, Head, Department of Chemistry
Henry Stout, Interim Director, Department of Architecture
Joseph W. Strother, Director, School of Art
Stephen A. Webre, Head, Department of History
Wiley W. Hilburn, Jr., Head, Department of Journalism
Richard J. Greechie, Director, School of Science Head, Department of Mathematics and Statistics
Richard L. Gibbs, Head, Department of Physics
Dale Sistrunk, Head, Department of Professional Aviation
Robert K. Toburen, Head, Department of Social Sciences
Guy D. Leake, Jr., Head, Department of Speech
Kathryn D. Robinson, Director, School of Performing Arts

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, pharmacy, speech language pathology or audiology; (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, physics, graphic design, journalism, 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 acquire, through their major study, a thorough knowledge of some special field. Thus, a student may obtain a liberal education, which will serve 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.

Academic Quarter Abroad

The College of Arts and Sciences recommends and encourages all majors in Arts and Sciences to seek participation in one of the University's travel-study programs, Tech Rome and/or Tech Mexico. Students may take required or elective courses in their curriculum at Tech Rome, earning up to 13 semester hours credit. Courses are taught in English by regular Tech faculty and selected guest professors from other American universities. Class participation is supplemented by extensive field work at museums, historical sites, and other locations in Rome and throughout Italy. Tech Mexico offers study of Spanish, Art and Architecture with other academic areas and tours through Mexico. These programs enhance immeasurably a student's cultural education and are an important contribution to a university graduate's maturity and broad educational perspective. Further information is available from each student's adviser and from the campus Tech Rome and Tech Mexico offices.

Awards

Alpha Rho Chi Award

This medal, which is an award from a national honor society, is presented each year to a graduating student for his/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 student, 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 a completed student design project, this medal is presented by the Louisiana Tech Chapter of the Tau Sigma Delta Honor Society.

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 a student instructor who has demonstrated the highest degree of professionalism in his/her 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.

L. M. Sciro Award for Theatre or Stage Management

The theatre faculty annually recognizes outstanding achievement by a student who has excelled in either theatre or stage management. The recipient must be a theatre major or minor of at least junior standing. The award was established by the friends of Mrs. Lula Mae Sciro, an honorary member of the Tech Theatre Players, who was a devoted supporter of Tech and its theatre program until her death in 1988.

Arthur W. Stone Playwriting Award

This award was established in 1980 to honor the retired Director of Theatre whose 28 years of service to the Theatre at Tech provided the cornerstone of Tech's theatre program.

Gregory Stone Memorial Performing Arts Award

This award was established in 1994 by the family and friends of Gregory Stone, son of Arthur and Bea Stone, of Ruston. As an artist and great lover of arts, Gregory's memory will be celebrated in this award which will be presented to performing arts students with exceptional talent.

Vera Alice Paul Award

This award is named in honor of 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 to 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 department which offers the scholarship.

Arts and Sciences Alumni Scholarships

Each year the college awards scholarships to deserving and needy students majoring in any of its curricula. Scholarship information is available in the office of the Associate Dean.

American Institute of Architects Scholarships

The Department of Architecture 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. Elizabeth Bethea Scholarship

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

Loyd Ray Click Memorial Scholarship

The Shreveport Chapter of the Construction Specifications Institute awards an annual $500 scholarship to a sophomore, junior, or senior student majoring in Architecture, Interior Design, Landscaping, Civil, Mechanical or Electrical Engineering, or Construction Engineering Technology. The award is based upon academic excellence, financial need, and character. The Selection Board is composed of an Architectural Department faculty member, an Engineering College faculty member, and a member of the Shreveport CSI Chapter.

Mary Alice Posey Garrett English Scholarship

The Department of English offers scholarships to English majors who have demonstrated outstanding academic ability. Pending full funding, the scholarship will be available to those applicants who major in English and desire to teach English.

CODOFIL Scholarships

Students should consult the Department of Foreign Languages in regard to scholarships for study in French-speaking countries.

Melinda Sue McGee Memorial Endowed Scholarship

The scholarship is awarded annually to a full-time architecture student for his/her year of study. The financial need of the recipient is important and the scholarship is renewable.

McGinty Undergraduate History Scholarships

In honor of Dr. Garnie W. McGinty, former head of the Department of History at Louisiana Tech University, scholarships are awarded by the department to outstanding undergraduate history majors on a competitive basis. To be eligible for consideration, an incoming freshman must have an ACT score of 26. A student already admitted to the university must have a GPA of 3.5 or above.

Journalism Department Scholarships

The Department of Journalism has a limited number of scholarships for incoming freshmen, awarded on the basis of need, academic ability, and demonstrated interest in the journalistic field. A limited number of scholarships are also provided to upperclassmen - as finances permit - on the basis of need, dedication to departmental endeavors, and academic excellence; the amount varies according to

individual circumstances.

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 E. 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 four scholarships of $1200 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.

Gladys B. Moore Speech Language Scholarship

This scholarship is awarded to students who are majoring in speech language pathology and who have a 2.5 GPA. Students must be recommended by the faculty and have a financial need for continuing their education in the field of speech language pathology.

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.

Merritt Performing Arts Scholarship

Student must be of sophomore standing or higher and must carry a GPA of at least 2.75 and must be active in the performing arts. Selection is by application and interview. Approximately $1800 per year.

Performing Arts Dorm Scholarship

Full or partial dorm scholarships are available to all Performing Arts majors. Student must maintain a 2.5 GPA. Selection is by application to the Director of School of Performing Arts. Award ranges from $500 to $1125 per year.

LaVerne E. Irvine Scholarship

Student must be a Performing Arts major of junior standing and carry a 3.0 GPA. Selection is by application and interview. Award is $1000 per year.

Virginia Thompson Women's Department Club Music Scholarship

Student must be a Music major carrying a 2.75 GPA. Award is by audition and interview. Award ranges from $750 to $1000 per year.

Out-of-State Tuition Waivers

Out-of-state tuition waivers are available to students who participate in debate, band, theatre, and choir programs. Students must (1) demonstrate high achievement in the appropriate performance area, (2) have a 2.5 cumulative grade point average, (3) demonstrate leadership, (4) receive a satisfactory rating in a personal interview, and (5) commit to participate in the appropriate area. Students must also be enrolled for credit in the appropriate activity.

Mabel Anne Walker Harper Piano Scholarship

Student must be a Performing Arts major carrying a 2.75 GPA. Student must be active in the piano program. Selection is by application and interview. Award is $450 per year.

Ben Laney Memorial Scholarship

Student must be active in the Performing Arts and carry a 2.75 GPA. Selection is by application and interview. Award is $600 per year.

Opera Workshop Award

Outstanding students participating in the Opera Workshop program are eligible for the Opera Workshop Award. Student must have a 2.5 GPA. Award is by audition. Awards range from $50 to $500 per year.

Theatre Scholarships

The Theatre Program has a limited number of scholarships for students interested in the production areas of theatre. Preference is given to theatre majors, but non-majors are encouraged to apply.

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, to further a high standard of aviation ethics, and to promote aviation in the community, state, and country.

Alpha Psi Omega

This international honor society encourages the production and appreciation of the art of theatre.

Membership is available to individuals who demonstrate excellence in production or scholarly activity in theatre arts. Activities provide a variety of programs that foster excellence and promote communication among the organization's membership, theatre faculty, and participants in the Tech theatre.

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.

American Institute of Interior Designers (Student Chapter)

The Student Chapter of ASID is a professional voluntary organization whose purpose is to enhance educational opportunities through close liaison and involvement with the interior design profession on a state and national level.

Art and Architecture Student Association

The AASA is a self-assessed, self-governed organization comprised of all art and architecture majors. The AASA's purpose is to enhance educational opportunities by sponsoring workshops, invited guest speakers, and educational films.

Kappa Kappa Psi

Kappa Kappa Psi, National Honorary Fraternity for College Band members, is an organization operating exclusively in the field of the university band. The organization provides service to the band department.

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.

Music Educators National Conference (MENC)

The Music Educators National Conference (Collegiate membership) is a national organization dedicated to the advancement of music education and to professional growth opportunities for its members.

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 leaning among its members. Any student who has the required grade point average and the prescribed number of hours in history courses may become a member.

Phi Buda Ruda

Phi Buda Ruda is a service fraternity for men and women designed for service to the Louisiana Tech Percussion studio and surrounding percussion interests. Membership requires participation in a percussion related music ensemble.

Phi Mu Alpha

Phi Mu Alpha is a professional music fraternity for men. Its purpose is 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.

Pi Mu Epsilon

Pi Mu Epsilon is a national honorary society 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 grade point average in college mathematics courses; (2) sophomores who have completed Math 231 and are enrolled in Math 232 (unless already completed) and 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 Delta Phi

Pi Delta Phi is the national French honor society. Its purpose is to encourage the study and appreciation of the French language, literature, and civilization. Activities bring faculty and students together for a variety of programs.

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. Sigma Alpha Iota strives to promote competency and achievement in music.

Sigma Delta Pi

Sigma Delta Pi is the national Spanish honor society. The purpose of the society is to encourage the study and appreciation of the Spanish language, literature, and civilization. Activities bring faculty and students together for a variety of programs.

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 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.

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/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 Beta Sigma

Tau Beta Sigma, National Honorary Sorority for College Band members is an organization operating exclusively in the field of the university band. The organization provides service to the band department.

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, the School of Architecture, the School of Performing Arts, the School of Science (Departments of Chemistry, Mathematics and Statistics, and Physics), English, Foreign Languages, History, Journalism, Professional Aviation, Social Sciences, and Speech. It offers curricula leading to the degrees of Bachelor of Arts, Bachelor of Architecture, Bachelor of Fine Arts, Bachelor of Science, Bachelor of General Studies, and Associate of General Studies. The College of Arts and Sciences also has Divisions of Research and Graduate Studies.

Students who satisfactorily complete the first year of work in an accredited dental, law, or medical curriculum, and who have previously finished the prescribed pre-professional curriculum in dentistry, law, 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 architecture, art, audiology, chemistry, English, English as a Second Language, French, geography, German, graphic design, history, interior design, journalism, mathematics, music, philosophy, photography, physics, political science, professional aviation, Russian, sociology, Spanish, speech communication, speech language pathology, and theatre.

Requirements for Graduation

Candidates for graduation in the College of Arts and Sciences must have completed an approved curriculum and must have an average grade of "C" or better on all course credits earned. For those curricula specifying such, the minor subject must be chosen with the approval of the student's adviser 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.

Graduate Programs

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

Master of Arts: English, History, Speech; Master of Fine Arts: Studio Art, Graphic Design, Interior Design, Photography; Master of Science: Chemistry, Mathematics, and Physics.

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

Degree in General Studies

General Studies offers students an opportunity to develop critical thinking and cultural awareness through a multi-disciplinary range of courses. The two-year associate degree can provide for career enhancement, self-improvement, and/or preparation for a four-year program. It is an individualized, flexible program that takes into account a student's academic status and career goals.

The Associate of General Studies degree requires 63 hours. These include 27 hours for the General Education Requirements, 15 hours in a concentration, and 21 hours

of approved electives. Information concerning acceptable concentrations is available from the Coordinator of the General Studies Program (main campus), the Director of the Barksdale Program (Barksdale campus), or the office of the Dean of Arts and Sciences.

In consultation with an advisor, a plan of study is set up when a student seeks admission to the program.

A 2.5 GPA in the concentration and 2.0 overall GPA are required for graduation.

Associate of General Studies

First Year	Semester Hours
English 101, 102	6
Mathematics	6
Computer Literacy	3
Science	3
Humanities	6
Social Science	3
Approved Elective	3
	30
Second Year	
Approved Concentration	15
Approved Electives	18
	33
TOTAL SEMESTER HOURS	63

General Studies is a degree program for undergraduate students interested in an inter-disciplinary education. It is an individualized, flexible program that takes into account a student's academic status and career goals.

The Bachelor of General Studies degree requires a total of 126 semester hours. These hours include the General Education Requirements, a concentration, and approved electives. Information concerning acceptable concentrations is available from the Coordinator of the General Studies Program (main campus), the Director of the Barksdale Program (Barksdale campus), or the office of the Dean of Arts and Sciences.

In order to receive a Bachelor of General Studies degree, a candidate must have a 2.5 GPA in the concentration, a 2.25 GPA in 45 hours of 300 and 400-level courses (at least 15 hours at the 400 level), and a 2.0 overall GPA.

Interested students should meet with the Coordinator of the General Studies Program on the main campus or the Director of the Barksdale Program on the Barksdale campus. At this time, in consultation with an advisor, a plan of study will be set up.

Bachelor of General Studies

First Year	Semester Hours
English 101, 102	6
Mathematics	3
Science	6
Humanities	9
Social Science	6
	30
Second Year	
Computer Literacy	3
Mathematics	3
Science	3
Art Appreciation	3
Humanities	3-9
Social Science	3
Approved Electives	9-15
	33
Third Year	
Approved Concentration	12*
Approved Electives	21
	33
Fourth Year	
*Approved Concentration	12-15
Approved Electives	18
	33
TOTAL SEMESTER HOURS	126

*Concentration must total at least 24 hours.

School of Architecture

The School of Architecture offers the following degrees:

Bachelor of Architecture (B.Arch. - an accredited professional degree.)

Most states require that an individual intending to become an architect hold an accredited degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board: (1) The Bachelor of Architecture, which requires a minimum of five years of study, and (2) The Master of Architecture, which requires a minimum of three years of study following an unrelated bachelor's degree or two years following a related preprofessional bachelor's degree. These professional degrees are structured to educate those who aspire to registration/licensure as architects.

The four-year, pre-professional degree, where offered, is not accredited by NAAB. The pre-professional degree is useful for those wishing a foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment options in architecturally related areas.

Bachelor of Fine Arts (B.F.A.) in Interior Design

Master of Fine Arts (M.F.A.) in Interior Design

Interior Design Curriculum

The Interior Design program 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 program is designed to enable students to develop creative imaginations, technical knowledge, graphic communication skills, and business insight. Built on a strong foundation of art and architecture it is reinforced by courses in arts and sciences, business and administration, and life and applied sciences to prepare students to become high quality entry level interior designers upon graduation. The Interior Design program is accredited by the Foundation for Interior Design Education Research (FIDER), and academically prepares the student for the NCIDQ exam enroute to becoming a fully qualified interior designer.

Freshman Year	Semester Hours
Architecture 130, 131, 132	6

Art 115, 116, 125, 126	12
English 101, 102, 201	9
History Elective	3
Mathematics 114	3
Mathematics Elective (above Math 110)	3
	36
Sophomore Year	
Merchandising and Consumer Studies 219	3
Architecture 200, 210, 211, 220, 221, 222, 230, 231	19
Art 215	3
English 202	3
Natural Science Elective	3
Sequential Science Elective	3
	34
Junior Year	
Architecture 232, 301, 311, 331, 332	12
Art 350, 352, 353, 354, 457, 458	18
Art History Elective	3
Natural Science Elective	3
	36
Senior Year	
Art 451, 452, 456	15
Art Electives	6
Art History Elective	3
Social Science Electives	9
Speech 377	3
	36
TOTAL SEMESTER HOURS	142

Senior Exhibit

A senior exhibit is required and will be a graded component of their final major studio course. A passing grade in this course is contingent upon a "C" or better grade for the exhibit.

The following course will serve as the final major studio/exhibit course:

Interior Design ..... Art 452 or Art 415

1. Students must achieve a 2.0 average in the following art 'core' curriculum courses, prior to beginning their professional courses: Art 115, 116, 125, 126, 215.
2. Once the student has completed the above 'core,' no grade of 'D' in the professional area courses or art history will apply towards the BFA degree.

Architecture Curriculum

The five-year curriculum in architecture is a first accredited 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 176 hours stipulated in the curriculum may be required in order to meet equivalency requirements.

Interdisciplinary Minor in Cultural Resources. See Department of History.

Bachelor of Architecture

Freshman Year-Preparatory Program	Semester Hours
Architecture 130, 131, 132	6
Art 115, 116, 125	9
Biological Sciences Elective	3
English 101, 102	6
Mathematics 111, 112	6
History 101, 102 or 201, 202	6
	36
Sophomore Year-Preparatory Program	
Architecture 200, 210, 211, 220, 221, 222 230, 231	19
Engineering Mechanics 206, 207	6
Mathematics 220	3
Physics 209, 210	6
	34

All students entering the Junior Year-Professional Concentration are required to have access to a computer for written, calculating and graphic work associated with professional area courses.

Junior Year-Professional Concentration	
Architecture 232, 300(2), 310, 311, 320, 330, 331, 471	20
Civil Technology 372, 471, 473	9
Electrical Engineering 386	3
Mechanical Engineering 326	3
	35
Senior Year-Professional Concentration	
Architecture 301, 401(2), 410, 411, 420, 421, 430, 481	20
Humanities Elective	6
Social Science Electives	9
	35

Admission to the Fifth Year of the program is contingent upon the following:

A 3.00 average in Architecture 310, 320, 410, and 420.

Fifth Year-Degree Design Project	
Architecture 321, 431, 470, 472, 473, 480, 490, 491	21
Architecture Electives (300/400)	9
Electives (300/400 level courses)	6
	36
TOTAL SEMESTER HOURS	176

No grade of "D" in architecture courses will apply towards the Bachelor of Architecture Degree.

School of Art

The School of Art offers the following degrees:

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

Master of Fine Arts (M.F.A.) in Graphic Design,

Photography, and Studio

Requirements For a Minor In Art

The following courses will constitute an art minor: Art 115, 116, 125, 126, 366, 367, and 466. Any deviation from the listed courses will require pre-approval of the Director of the School of Art and Architecture. This minor does not meet teacher certification requirements.

Interdisciplinary Minor in Cultural Resources. See Department of History.

Bachelor Of Arts In Art Education

See College of Education.

School of Art Objectives

As a unit within the framework of the College of Arts and Sciences and within the School of Art's purpose is the blending of liberal studies to serve as an underpinning for involvement with and concentration in the specific professional art disciplines. The School's intention is to produce students who are equipped to function capably in their chosen profession.

The collective purpose of Louisiana Tech University's School 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 objectives are to provide the student with (1) a series of guided experiences in his/her artistic heritage, (2) materials and their historical/contemporary uses, leading towards the development of a personal aesthetic, and (3) encouragement and fostering of 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 professional artists.

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 level courses and 300 courses are prerequisites for 400 level courses. Any exception must be approved by the Director.

Senior Exhibit

A senior exhibit is required of all art majors and will be a graded component of their final major studio course. A passing grade in this course is contingent upon a "C" or better grade for the exhibit. The area head assigns this grade.

The following courses (by areas) will serve as the final major studio/exhibit course:

Graphic Design	Art 417 or Art 415
Photography	Art 473 or Art 474
Studio:	
2-D	Art 415
3-D	Art 415

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.

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, rendering, 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, 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: print advertising, newspaper, magazine and book publishing, specialized studios, among other related activities.

Freshman and Sophomore Years	Semester Hours
Art 115, 116, 125, 126, 117, 215, 216, 225, 308, 309, 315	33
Rendering	6
English 101, 102, 201, 202	12
Mathematics 114 plus 3 hours Math elective	6
Science	3
Art History 366, 367, 466	9
	69
Junior and Senior Years	
Art	39
(Determined by area curriculum sheet and area head.)	
Art History	6
Electives	3
History	3
Science	6
Social Science	9
Speech 377	3
	69
(Computer requirement included in curriculum)	
TOTAL SEMESTER HOURS	138

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 115, 116, 117, 120, 125, 126, 170, 173, 215, 216, 270, 271, 370	39
English 101, 102, 201, 202	12
Mathematics 114 plus 3 hours Math elective	6
Art History 366, 367, 466	9
Science	3
	69
Junior and Senior Years	
Art	27
(Determined by area curriculum sheet and area head.)	
Art Electives	12
Art History	6
History	3
Science	6
Social Science	9
Speech 377	3
Elective	3
	69
(Computer requirement included in curriculum)	
TOTAL SEMESTER HOURS	138

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 115, 116, 117, 120, 121, 125, 126 215, 216, 225 228, 240, 331,	39
English 101, 102, 201, 202	12
Mathematics 114 plus 3 hours Math elective	6
Science	3
Computer Elective	1
Art History 366, 367, 466	9
	70
Junior and Senior Years	
Art 390 Plus 39 Art Hours	42
(Determined by area curriculum sheet and area head.)	
Art History	6
History	3
Science	6
Social Science	9
Speech 377	3
	69
TOTAL SEMESTER HOURS	139

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

Department of Chemistry

Chemistry Curriculum (B. S.)

The B. S. Chemistry Curriculum offers a broad background in chemistry and results in a degree which is approved by the American Chemical Society. Students entering this program generally plan to pursue a career as an industrial chemist or attend graduate school with a specialty in one of the major areas of chemistry (analytical, inorganic, organic, or physical).

Students who are interested in pre-medicine, pre-dentistry, or biochemistry can make the following substitutions: Physics 209, 210 for Physics 201, 202; humanities elective for English 303; Chemistry 351, 352, 353, 354 for Chemistry 466, 481; any science courses for A&S 435 and the other advanced chemistry courses; 6 hours electives for Math 233, 350.

Freshman Year	Semester Hours
Chemistry 100, 101, 102, 103, 104	8
English 101, 102	6
Mathematics 111, 112, 230	9
Social Science*	6
Biological Sciences 120	3
	32
Sophomore Year	
Arts**	3
Chemistry 205, 250, 251, 252, 253, 254	12
Computer Science Elective	3
Mathematics 231, 232	6
Physics 201, 202, 261, 262	8
	32
Junior Year	
Arts & Sciences 435	1
Chemistry 281, 381	6
Chemistry 311, 312, 313, 314	8
English 202, 303	6
Mathematics 233, 350	6
Electives***	6
	33
Senior Year	
Arts and Sciences 435	2
Chemistry 466, 481	7
Chemistry 409 or 420 or 424	3
History (200 level)	3
Social Science*	3
Speech 377	3
Electives	11
	32
TOTAL HOURS	129

*Economics, geography, anthropology, political science, psychology, or sociology (minimum of two disciplines)

**Art 290, Music 290, or Speech 290.

***Recommended electives: Chemistry 490, Math 308, 313. Pre-medical and pre-dental students should take Bacteriology 214, and Biological Sciences 310, 315, 320, and 321. A&S 435 is recommended.

Pre-Optometry Curriculum

The Pre-Optometry Curriculum is a program designed to satisfy the general minimum requirements for admission to optometry school. Included in the application for admission to a particular school of optometry will be the results of the Optometry College Admission Test (OCAT) which will be taken during the course of the program.

Freshman Year	Semester Hours
Chemistry 100, 101, 102, 103, 104	8
English 101, 102	6
Mathematics 111, 112	6
History Elective	3
Biological Sciences 120, 121, 124, 125	8
	31

Sophomore Year	
Biological Sciences 224, 226	4
Chemistry 250, 251, 252, 253, 254	8
Mathematics 230, 231	6
Psychology 102	3
Management 105	3
Biological Sciences 290	4
	31

Junior Year	
Bacteriology 214	4
Chemistry 351	3
English 201 or 202	3
Physics 209, 210, 261, 262	8
Sociology 201	3
Biological Sciences 320, 321	4
Psychology 300 or Life Sciences 420	3
	28
TOTAL SEMESTER HOURS	90

Pre-Pharmacy Curriculum

The Pre-Pharmacy Curriculum is a two-year course of study designed to prepare students entering a professional pharmacy program.

Freshman Year	Semester Hours
Accounting 201	3
Chemistry 100, 101, 102, 103, 104	8
Economics 201 or 215	3
English 101, 102	6
Health and Physical Education 150	2
Mathematics 111, 112, 230 or 220	9
Biological Sciences 120, 121	4
	35

Sophomore Year	
Bacteriology 212, 213	4
Chemistry 250, 251, 252, 253, 254	8
English (200 level literature)	3
Psychology 300	3
Physics 209, 210, 261, 262	8
Electives*	11
	37
TOTAL SEMESTER HOURS	72

*A minimum of eight hours credit to be selected from the areas of foreign languages, history, literature, philosophy, religion,and speech. A minimum of three hours credit to be selected from the areas of art, dance, music, or theatre.

Requirements for a Minor in Chemistry

A minor in chemistry consists of Chemistry 100, 101, 102, 103, 104, and thirteen additional hours, of which nine must be 300 or 400 level.

Department of English

Credit Examination

Any high school graduate whose ACT English score is 26 or higher qualifies to take the English Credit Examination, given at the beginning of each quarter. Only students who have never attempted college English coursework may take the credit exam, which consists of grammar, punctuation, spelling, and composition. Credit for English 101 is given to students who pass this departmentally administered and graded examination.

Requirements for a Major in English

Students in the Department of English are required to follow the curriculum for the Major in English leading to the degree of Bachelor of Arts in English. A major in English consists of 30 semester hours: the study plan must include English 101, 102, 201, 202, 332, 336, 413 or 414 or 440, 416 or 417, 403 or 404, and 415, and an approved minor of 21 hours for a minimum total of 130 semester hours. English majors must have a 2.0 earned grade point average for graduation and no grade lower than a "C" in any required English class.

Requirements For a Minor in English

A minor in English consists of 21 semester hours of English courses. The plan of study must include English 101, 102, 201, 202, 415, and six additional 300/400 level semester hours of English.

Requirements for a Concentration in Technical Writing

No later than the end of the sophomore year, students wishing to pursue a concentration in Technical Writing leading to the degree of Bachelor of Arts in English are required to declare their intention. Those choosing the Technical Writing concentration must include in their study plan English 101, 102, 201 or 202, 260 or 303, 361 or 363, 460, 461 or 463, 462, 362 or 464, and 465 and an approved technical specialization area of 21 hours for a minimum total of 130 semester hours. English majors with a concentration in Technical Writing must have a 2.0 earned grade point average for graduation and no grade lower than a "C" in any required English class.

Requirements for a Minor in Technical Writing

A minor in Technical Writing consists of 21 semester hours of English courses. The study plan must include English 101, 102, 201 or 202, 260 or 303, and nine additional hours of 300/400 level semester hours of any courses listed in the Technical Writing concentration.

Interdisciplinary Minor in Cultural Resources. See Department of History.

English Curriculum

Freshman Year	Semester Hours
English 101, 102; 201 or 202	9
Health & Physical Education	2
History 101, 102	6
Mathematics 110 or above	6
Natural Science (refer to General Education Requirements listed in this Bulletin for choice of courses)	3
Social Science (refer to General Education Requirements listed in this Bulletin for choice of courses)	6
	32

Sophomore Year	
English 201 or 202	3
Foreign Language	6
Health & Physical Education	2
History 201 or 202	3
Management Information Systems 101 or approved computer course	3
Natural Science	6
Speech 110, 211, or 377	3
Social Science	3
Electives	3
	32

Junior Year	
Art 290 or Music 290 or Speech 290 or HPE 280	3
English 332, 336	6
English 413 or 414 or 440	3
English 416 or 417	3
Foreign Language	6
Electives	12
	33
Senior Year	
English 403 or 404	3
English 415	3
Electives	27
	33
TOTAL SEMESTER HOURS	130

*Additional computer literacy courses include Computer Science 100, Merchandising and Consumer Studies 246, Education 245, Education 445 or any computer language course (e.g. Cobol, Fortran, etc.) **Education 310 is not acceptable.**

Three quarters constitute an average academic year.

Students choosing Mathematics 111 must continue with Mathematics 112.

Natural Science requirement must include both physical and biological sciences with at least 6 hours from a two-quarter sequence.

Students are required to take a maximum of four hours of activity courses in Health and Physical Education.

In choosing electives students should remember the following points: first, complete a minimum of 30 hours in English; second, choose an approved minor with their advisor's permission; and third, meet the minimum requirements in hours for the minor subject.

Technical Writing Concentration

Students pursuing the Technical Writing concentration must select English courses from the following offerings.

ENGL 260:	Introduction to Technical Writing
ENGL 303:	Technical Writing
ENGL 361:	The Scientific Method
ENGL 362:	Graphics in Technical Writing
ENGL 363:	Readings in Scientific and Technical Communication
ENGL 460:	Advanced Technical Writing
ENGL 461:	Technical Writing for Publication
ENGL 462:	Technical Editing
ENGL 463:	Scientific and Technical Presentations
ENGL 464:	Occupational Technical Writing
ENGL 465:	Specification, Bid, Grant, and Proposal Writing
ENGL 466:	Technical Writing Internship
ENGL 467:	Special Problems in Technical Communication

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 office 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. All native speakers of languages other than English must consult the department office before enrolling in classes in their language. Students are urged to complete the foreign language requirement for the REGENTS' CERTIFICATE OF EXCELLENCE through credit examination and classwork.

Foreign Language Requirement

All students are advised to complete a year's sequence of their foreign language courses without unnecessary interval between courses. Regulations require completion of a language requirement in the same language.

Majors and Minors

Minors in French, German, Russian, and Spanish consist of 21 hours in those languages. Majors in French and Spanish consist of 30 hours above the 100 level. These programs lead to Bachelor of Arts degrees in French and Spanish, respectively. Students pursuing these majors should consult with the department office concerning specific plans available for use of electives, minors, and second areas to strengthen their major and career plans.

Study Abroad

Study opportunities abroad are offered to students of French, German, Russian, and Spanish. Through the university's membership in the CODOFIL Consortium French students may choose from a variety of programs in Quebec, Belgium and France. Through Louisiana Tech's accord with the Universidad Autonoma de San Luis Potosi (Mexico), students may participate in summer language courses with home stay and practical experiences in special areas arranged. Russian and German students participate in study aborad programs conducted by other U. S. institutions.

English as a Second Language (ESL)

The Department of Foreign Languages offers special programs in English as a Second Language for groups of 10 or more participants. Such programs are conducted under contract and may last from 2 to 12 weeks or longer.

French Curriculum

Freshman Year	Semester Hours
English 101, 102	6
French 201, 202	6
Mathematics 110, 114 or 111, 112	6
Natural Science*	6
Electives	6
	30
Sophomore Year	
Education 245 or Q. A. 220	3
French 301, 302, 304	9
Humanities**	6
Minor, Second area	6
Natural Science*	3
Science Elective	3
Social Science***	3
	33
Junior Year	
French 305	3
French, (upper div.)	6
Humanities**	6
Social Science***	3
Minor, second area	15
	33

Senior Year

Art 290, Music 290, or Speech 290	3
Electives	4
French 450, 470	6
Minor, second area	17
Social Science***	3
	33
TOTAL SEMESTER HOURS	129

As the scheduling of upper-division French courses is determined by changing enrollment patterns, students who plan to complete their degree within the shortest time possible may have to take one or more French courses through the Inter-Institutional Cooperative Program at Grambling State University.

*Natural Science must include both physical (chemistry, physics, or geology) and biological sciences with at least 6 hours from a two-quarter sequence. Courses with laboratories are recommended.

**Humanities must include at least 3 hours at the sophomore level or above. Must include at least 3 hours of history, literature (in English or the literature of a second foreign language), and Speech communications. For the fourth course, one may elect a class from the options already given or from English or a second foreign language (above the introductory level), philosophy, or religious studies.

***Social Science must be chosen from economics, geography, anthropology, political science, psychology, sociology, with a minimum of two disciplines.

French 101 and 102 may be used as freshman electives only if the student does not qualify for French 201 upon entering.

Spanish Curriculum

Freshman Year	Semester Hours
English 101, 102	6
Mathematics 110, 114 or 111, 112	6
Natural Science*	6
Spanish 201, 202	6
Electives	6
	30

Sophomore Year	
Spanish 301, 302, 380	9
Natural Science*	3
Humanities**	6
Social Sciences***	3
Education 245 or Management Information Systems 101	3
Minor, second area	6
Science Elective	3
	33

Junior Year	
Spanish 381	3
Spanish (upper div.)	6
Humanities**	3
Social Science***	6
Minor, second area	12
	33

Senior Year	
Minor, second area	20
Spanish 450	3
Spanish (upper div.)	3
Art 290, Music 290, or Speech 290	3
Electives	4
	33
TOTAL SEMESTER HOURS	129

As the scheduling of upper-division Spanish courses is determined by changing enrollment patterns, students who plan to complete their degree within the shortest time possible may have to take one or more Spanish courses through the Inter-Institutional Cooperative Program at Grambling State University.

*Natural Science must include both physical (chemistry, physics, or geology) and biological sciences with at least 6 hours from a two-quarter sequence. Courses with laboratories are recommended.

**Humanities must include at least 3 hours at the Sophomore level or above. Must include at least 3 hours of history, literature (in English or the literature of a second foreign language), and speech communications. For the fourth course one may elect a class from the options already given or from English or a second foreign language (above the introductory level), philosophy, or religious studies.

***Social Science must be chosen from economics, geography, anthropology, political science, psychology, sociology, with a minimum of two disciplines.

Spanish 101 and 102 may be used as freshman electives only if the student does not qualify for Spanish 201 upon entering.

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 or her adviser during each registration period and 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 scholarly historical works and to award scholarships to qualified students. The Department also sponsors the American Foreign Policy Center.

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.

Interdisciplinary Minor in Cultural Resources

The Interdisciplinary Minor in Cultural Resources is a program of study in material culture and folk culture, combining courses in Archaeology, Architecture, Art History, and other related fields. Course offerings cover content, theory, method, and techniques of research, documentation, and preservation. This minor is well suited for students who wish to enrich their personal background in the arts, humanities, and social sciences, or wish to prepare for careers or post-graduate study in arts and culture administration, museum studies, applied history, historical preservation, and archives and records management.

The minor consists of 21 hours, to include a concentration in either Group I or Group II, below. A concentration must be at least 9 hours but no more than 15 hours. The remaining hours may be chosen from the opposite group and/or from Group III.

Group I: Archaeology 401, 410, 420, 462, 463, 464, 466.

Group II: Architecture 211, 222, 231, 321, 331, 472; Art 364, 366, 367, 368, 457, 458, 466, 467, 468, 469, 472.

Group III: English 275, 421, 422, 482; Geography 205, 230, 380.

At least 12 hours must be chosen from courses numbered 300 or above.

Hours counted toward a student's major may not be counted toward the Interdisciplinary Minor in Cultural Resources.

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	
Computer Science 101 or Management Information Systems 101 or Education 245 or Merchandising and Consumer Studies 248	
English 201, 202	6
Foreign Language*	6
History 201, 202	6
Health & Physical Education	1
Science***	6
Sociology 201 and any other Sociology	6
	34
Junior Year	
Economics 200 or 215	3
History (300 or 400 level course)	9
Minor Subject	9
Political Science 201 and any other Political Science	6
Science	3
Speech 110	3
	33
Senior Year	
Art 290, Music 290 or Speech 290	3
Electives	8
History (300 or 400 level course)	9
Minor Subject	12
	32
TOTAL SEMESTER HOURS	129

*The twelve hours foreign language requirement must be in the same language.

**Mathematics 111 and 112, each three hours credit, may be taken in place of Mathematics 110 and 114 or 125.

***Must include both physical and biological sciences with at least six (6) hours from a two-quarter sequence.

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 students must complete 21 hours in an additional area.

Requirements for a Minor

For students in other departments, Journalism 101, Journalism 102, Journalism 310, Journalism 320 and 9 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

Freshman Scholarships - a limited number of incoming freshman scholarships are available.

Student Publication Service Scholarships - these scholarships are service-based and are awarded basically to editors of ***The Tech Talk***.

Other scholarships are available as finances permit.

Journalism Curriculum

Freshman Year	Semester Hours
Journalism 101, 102, 320	9
English 101, 102	6
History 201, 202	6
Math 110 and 114, or 111 and 112	6
Speech 110	3
Health & Physical Education activity	1
	31
Sophomore Year	
Journalism 310, 311, 350, 353	10
English 201, 202	6
Foreign Language (same language)	6
Natural Science*	4
Health & Physical Education activity	2
Minor	6
	34
Junior Year	
Journalism 353, 355	4
Journalism Elective	3
Foreign Language (continuation of same language)	6
Natural Science*	4
Geography 230	3
Political Science 201	3
Health & Physical Education activity	1
Minor	6
Elective	3
	33
Senior Year	
Journalism 400	3
Journalism Elective	2
Natural Science*	4
Art 290, Music 290 or Speech 290	3
Economics 215	3
Minor	9

Electives 8

32

TOTAL SEMESTER HOURS 130

*Natural Science credits must include one laboratory course and both physical and biological sciences; at least six hours must come from a two-quarter sequence. (Physical sciences include chemistry, physics, and geology; biological sciences include botany and zoology.)

Department of Mathematics and Statistics

The courses in the Department are designed as follows: (1) to provide mathematics courses in the core curriculum; (2) to serve the requirements of students pursuing a 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 not having had high school geometry should earn credit for Mathematics 113.

Mathematics Placement Exam Requirements

A. Each student with a Math ACT score of 0-19 or with no ACT scores on record at Louisiana Tech will be eligible to enroll in Math 099 without taking a placement exam.

If such a student desires to bypass Math 099, Placement Exam A will be required. A satisfactory score on Exam A will place the student in Math 110 (Algebra for College Students). A student who passes Exam A with a superior score and who desires to bypass Math 110 can request permission through the Mathematics Department to take Exam B.

B. Each student with a Math ACT score of 20-25 will be eligible to enroll in Math 110 without taking a placement exam.

If such a student desires to bypass Math 110, Placement Exam B will be required. A satisfactory score on Exam B will place the student in Math 111 (College Algebra) or Math 125 (Finite Mathematics). A student who passes Exam B with a superior score and who desires to bypass Math 111 to take Math 112 or Calculus (Math 220, Math 222, or Math 230) can request permission through the Mathematics Department to take Exam C.

C. Each student with a Math ACT score of 26 or higher will be eligible to enroll in Math 111 (College Algebra), Math 125 (Finite Mathematics), or Math 110 (Algebra for College Students) without taking a placement exam.

If such a student desires to bypass Math 111 or Math 125, Placement Exam C will be required. A satisfactory score at the proper level on Exam C will place the student in either Math 112 (College Trigonometry) or Calculus (Math 220, Math 222, or Math 230).

D. Transfer students must satisfy the same placement requirements as beginning freshmen with the following exceptions:

1. If college credit has been earned for the equivalent of Math 110 (Algebra for College Students), the student will not be required to take Placement Exam A or Placement Exam B. The student will be eligible to enroll in any course with Math 110 as the only math prerequisite.
2. If college credit has been earned for the equivalent of Math 111 (College Algebra), the student will not be required to take any placement exam. The student will be eligible to enroll in any course with Math 111 as the only prerequisite.
3. If college credit has been earned for the equivalent of both Math 111 (College Algebra) and Math 112 (College Trigonometry), the student will not be required to take any placement exam. The student will be eligible to enroll in any course with Math 112 and/or Math 111 as the only math prerequisites.

Mathematics Credit by Placement

A. Each student who is eligible by the stated placement criteria for beginning freshmen to enroll in Math 112 will be awarded credit by examination in Math 111 if a grade of B or higher is attained in Math 112 on the first enrollment in Math 112.

B. Each student who is eligible by the stated placement criteria for beginning freshmen to enroll in Calculus (Math 220, Math 222, Math 230) will be awarded credit by examination in Math 111 and Math 112 if a grade of B or higher is attained in Math 220 or Math 230 for the first enrollment in the course. If such a student earns a grade of B or higher in Math 222 for the first enrollment in the course, credit by examination will be awarded in Math 111 only.

Requirements for a Major

Each student majoring in mathematics is assigned an adviser from the members of the Mathematics and Statistics Department staff. The student is requested to meet with his/her adviser at least once during each quarter, at which time courses for the following quarter are decided upon.

Each mathematics major must complete the mathematics curriculum which follows with a grade of 'C' or higher in all mathematics and statistics courses, and must complete a minor. The minor requirements are listed under the department concerned. An individualized study project for one to three semester hours credit is recommended for a major.

Students who wish to obtain a more intensive degree program with a concentration in Statistics-Mathematics -Engineering are not required to declare a minor if they earn credit for the following courses: (1) Statistics 405, Mathematics 414, and 440; (2) any three of the following courses: Statistics 411, 448, Mathematics 405, 407, 415, 441, 445; (3) six semester hours in the College of Engineering which are approved by the student's adviser. 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 230, 231, 232, 233, and in addition 12 semester hours earned in statistics courses or mathematics courses numerically above Mathematics 307 and Statistics 200. No more that 6 semester hours may be in statistics.

Mathematics Curriculum

Freshman Year	Semester Hours
Chemistry 100, 101, 102, 103, 104	8
English 101, 102	6
English 201 or 202	3
Mathematics 230, 231, 232	9
History 101 and 102 or 201 and 202	6
	32
Sophomore Year	
Computer Science 100	3
Engineering 102	2
Electives from Social Sciences*	6
Mathematics 233, 308	6
Mathematics or Statistics Elective***	3
Physics 201, 202, 261, 262	8
General Electives	6
	34
Junior Year	
Art 290, Music 290 or Speech 290	3
Foreign Language	6
Mathematics 311, 350	6
Mathematics or Statistics Elective***	6
Science (Electives)**	3
General Electives	9
	33
Senior Year	
English 303	3
Mathematics 318, 340	6
Mathematics or Statistics Elective (above 400)	3
General Electives	12
Science Elective**	3
Social Science Elective*	3
Speech 110	3
	33
TOTAL SEMESTER HOURS	132

*Courses chosen from Economics, Geography, Anthropology, Political Science, Psychology, Sociology - Minimum of two disciplines.

**Three semester hours of science electives must be chosen from Biological Sciences.

***Mathematics Elective must be numerically above 307.

School of Performing Arts

Objective

The School of the Performing Arts has as its primary purpose the education of students for careers as performers, teachers, and scholars in the performing arts fields of Theatre, Music, Dance, and Film. It also recognizes the interrelationships of the academic disciplines and provides instruction in the performing arts as a humanistic study. Further, the School endeavors to meet its obligations of service and assistance to its various communities, both within and beyond the University environment. The School is dedicated to the advancement of performing arts culture both in the academic setting and in society.

Degrees

The School of Performing Arts offers the following degrees:

Music Department.

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 symphony orchestra, or band instrument.

Bachelor of Arts Degree in Music. This curriculum is designed for the student who desires a liberal arts education with a concentration in music.

Bachelor of Arts Degree in Education with Major in Music. See College of Education.

Music Minor. A minor in music is designed for those who have a strong interest in music as a secondary subject.

Theatre Program.

Bachelor of Arts in Speech with a Concentration in Theatre. The theatre curriculum consists of theatre courses within the Speech Department. The degree is designed for those interested in the performance, technical, and management aspects of theatre training within a liberal arts education.

Bachelor of Arts Degree in Education with Major in Speech and a Concentration in Theatre. See College of Education.

Master of Arts in Speech with a Concentration in Theatre. This curriculum emphasizes the study of performance on practical and theoretical levels.

Minor in Speech/Theatre

A minor in theatre is designed for those who have a strong interest in theatre as a secondary subject. A minimum of 21 hours is required: Speech 201, 240, 307, 400, 401, 404 (two hours), 490, and three hours to be chosen from 300 or 400 level theatre classes.

Department of Music

The primary purpose of the Department of Music within the School of Performing Arts 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 Department Student/Faculty 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' transcripts are evaluated to determine their placement in theory and applied music courses.

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, organ, saxophone, trumpet, horn, trombone, euphonium, tuba, percussion, or vocal or instrumental music education.

1. Entering freshmen music majors are required to audition in the major performance medium before or during registration. The audition may be on campus or by tape recording. These auditions must be scheduled before registration ends. Contact the Coordinator of Music for further details.

2. Recital requirements should include the following:

Candidates for music education and Bachelor of Arts in Music are required to present a one-half length recital of not less than 25 minutes of music. Candidates for performance degrees are required to present a one-half length recital of not less than 25 minutes of music and a full-length recital of not less than 50 minutes of music.

Permission to present each recital must be obtained from an examining jury at least two weeks prior to the recital.

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 degree is 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.

21 semester hours consisting of: Music 102, 103, 104-six (6) hours; Major Ensemble, Band or Choir-one (1) hour; Music Applied-four (4) hours (must be from one area); Music 204-one(1) hour; Music 330-three (3) hours; Music Electives-six (6) hours to be selected from the following: Music 317-two (2) hours, Music 318-two (2) hours, Music 319-two (2) hours, Music 408-one (1) hour, Music 466-three (3) hours, Music 467-three (3) hours, Music 468-two (2) hours, Music 484-three (3) hours, Music 486-three (3) hours. This minor does not meet teacher certification requirements.

ENSEMBLES

Vocal:

Concert Choir; Chamber Singers; Gospel Choir; Opera Workshop.

Instrumental:

Symphonic Wind Ensemble; Concert Band; Marching Band; Jazz Ensemble; Instrumental and Percussion Ensemble; Tech-Ruston 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 majors will enroll in a vocal ensemble; 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. Permission for participation in more than two ensembles or other music activity must be granted by the student's applied teacher and Coordinator of Music.

Every music major is required to attend the weekly recital and seminar classes. Those majoring in Music Education will perform twice each year, while performance majors will perform three times each year. It is recommended that piano majors enroll in Music 464, 465, and 467, and voice majors enroll in Music 466 and 476.

Music Curriculum (B.F.A.)

This curriculum is designed for those who wish to stress the performing and 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 adviser to check on academic status and to plan future work. See departmental handbook for upper division requirements in applied music.

Freshman Year	Semester Hours
Computer Literacy	1
English 101, 102	6
*Health & Physical Education	1
Math 110	3
Music 102, 103, 1046	
Music Applied Major	6
Music Applied Minor	3
Music Ensemble	3
Music 108, 109, 110	3
Social Science	3
Natural Science	3
	37 or 38

Sophomore Year	
Speech 110	3
Mathematics 125 or 114	3
Music 201, 202, 203	6
Music 204, 305 or 306	3
Music Applied Major	6
Music Applied Minor	3
Music Ensemble	3
Natural Science (sequence Bio. or Phys.)	3
*Health & Physical Education	1
History	3
	33 or 34*

Junior Year	
Foreign Language	6
*Health & Physical Education	1
Music 303 or 314	2
Music 310	3
Music 317, 318, 319	6
Music Applied Major	6
Music Applied Minor	2
Music Ensemble	3
Music Theory Elective	3
Music 455 (1/2 recital)	0
Natural Science (sequence Bio. or Phys)	3
	34 or 35*

Senior Year	
English 201 or 202	3
Speech 378	3
Humanities Elective	3
Music or Other Elective	3
Music 304	3
Music Applied Major	6
Music Applied Minor	2
Music Ensemble	3
Music 455 (Recital)	0
Pedagogy Elective	4
Social Sciences	6
	36
TOTAL SEMESTER HOURS	141 or 143*

*Health & PE 100 (marching band) may be taken for 2 hours credit to substitute for 2 hours of ensemble.

Music Curriculum (B.A.)

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 Coordinator of Music and the Dean. In addition to their major and minor, they will complete the rest of the work indicated in the curriculum below.

Freshman Year	Semester Hours
Computer Literacy	1
English 101, 102	6
History 101, 102	6
Mathematics 110	3
Music 102, 103, 104	6
Music 108, 109	2
Music Applied	3
Music Ensemble	3
*Health & Physical Education	1
Natural Science Elective	3
	33 or 34*
Sophomore Year	
Mathematics 125	3
Minor Subject	9
Music 201, 202, 203	6
Music Applied	5
Music Ensemble	3
Health & Physical Education	1
Science	3
Social Science Elective	3
Speech 110	3
	36
Junior Year	
Music Ensemble	3
English 201	3
Foreign Language	3
*Health & Physical Education	1
Minor Subject	9
Music Applied	5
Music 317, 318, 319	6
Social Science Elective	3
	32 or 33*
Senior Year	
Speech 378	3
Elective	3
Foreign Language	9
Minor Subject	3
Music Elective	1
Music Applied	3
Music Ensemble	3
Science (sequence Bio. or Physics)	3
Social Science Elective	3
	31
TOTAL SEMESTER HOURS	132* or 134

*Health & Physical Education 100 (marching band) may substitute for 2 hours of ensemble.

Theatre Program

The Theatre Program's primary goal is to provide its students with a quality theatre curriculum that prepares the individual for employment in educational, recreational and professional theatres. The Theatre Program (administered within the School of Performing Arts) offers both graduate and undergraduate degrees in Speech with a concentration in Theatre. The degrees emphasize theatre performance enhanced by a solid historical/critical base. The specific goals (as set forth in the Louisiana Tech Theatre Handbook) are designed to meet accreditation requirements of the National Association of Schools of Theatre. For a curriculum outline, see the speech curriculum.

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. A physics major is an excellent choice for the pre-medical student.

Requirements For a Major

Each student majoring in physics is required to follow the physics curriculum leading to the Bachelor of Science degree in physics.

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 (Microbiology), Mathematical Physics (Mathematics), Solid State (Chemistry and Engineering).

Laser/Optics Specialty

A Laser/Optics Specialty is designed to provide students with more specific studies in the area of lasers and optics. Technical electives in the third and fourth years of study are to be taken from courses such as physical optics, geometrical optics, lasers, modern optics, and Fourier optics. Laboratory courses emphasize hands-on learning through experimentation with modern optical equipment.

Requirements For a Minor

Students from other departments who elect a minor in physics should complete Physics 201, 202, 261, 262 and 14 semester hours of advanced courses 300-400 level.

Physics Curriculum

Freshman Year	Semester Hours
Chemistry 100, 101, 102, 103, 104	8
English 101, 102	6
History 202	3
Mathematics 230, 231, 232	9
Physics 102, 103, 104	3
Speech 110	3
	32
Sophomore Year	
Arts Elective	3
English 202, 303	6
German 101, 102	6
Mathematics 233, 350	6
Physics 201, 202, 261, 262, 304	11
	32

Junior Year	
Biological Science	3
Geography 230	3
German 201, 202	6
Mathematics 410, 411	6
Physics 307, 416, 417, 418, 419, 422	14
Technical Electives	3
	35

Senior Year	
Physics 406, 407, 408, 409, 423, 424, 430, 435	19
Technical Electives	7
Social Science Electives	6
	32
TOTAL SEMESTER HOURS	131

The student may substitute French, Russian, or Spanish for German.

Technical electives are to be selected from courses offered in the College of Engineering or from the departments of Chemistry, Mathematics, or Physics.

The student may substitute English 201 for English 202.

The biological science elective may be any biological science course.

The arts elective must be chosen from courses such as: Art 290 (art appreciation), or Music 290 (music appreciation) or Speech 290 (theatre appreciation).

The social sciences electives must include a minimum of two disciplines chosen from: economics, anthropology, political science, psychology, or sociology.

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 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 46 semester hours of aviation courses as follows: Professional Aviation 101, 102, 110, 111, 200, 206, 207, 208, 210, 211, 212, 300, 303, 306, 307, 310, 311, 322, 400, 414, 410, 411, and 495. Every aviation major must have an approved minor, 21 semester hours minimum, (or possess an associate degree). Students are encouraged to select a minor that will provide a career enhancement option. This minor will be declared by the beginning of the junior year. An aviation major may select a (1) technical minor in Air Carrier Operations, (2) an Aviation Management minor, or (3) other University approved minors of their choice.

Students may elect to pursue a more intensive aviation degree program by selecting one of three Federal Aviation Administration (FAA) approved Airway Science Areas of Concentration (AOC). Information on these areas is available in the aviation department office.

Requirements for a Minor: For Non Aviation Majors.

Non-Aviation majors may obtain a minor in Aviation Flight. This minor consists of Professional Aviation 101, 102, 110, 111, and 13 semester hours of 300-400 level aviation courses approved by an advisor.

Requirements for a Minor: For Aviation Majors.

Aviation Management minor. This minor consists of 21 hours of aviation management and transportation courses; as well as credit from approved internships.

Special Flight Fees

Additional 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 111 & 222 or 112 & 220	6
Health & Physical Education	1
Psychology 102	3
Professional Aviation 101, 102	6
Professional Aviation 110, 111	2
Social Science Elective	3
	30

Sophomore Year	
History 201 or 202	3
Physics 205, 206	6
Professional Aviation 200, 206, 207, 208, 300	12
Professional Aviation 210, 211, 212	3
Minor Field (Student Choice)	3
Free Elective	6
	33

Junior Year	
Fine Arts (Art 290 or HPE 280 or Music 290 or Speech 290	3
English 303	3
Professional Aviation 303, 306, 307, 322	10
Professional Aviation 310, 311	2
Speech 377	3
Social Science Elective	3
Minor Field (Student Choice)	6
Free Elective	3
	33

Senior Year	
Natural Science Electives (must be Biological Science)	3
Minor Field (Student Choice)	12
Health & Physical Education	1
Professional Aviation 400, 414, 495	9
Professional Aviation 410, 411	2
Restricted Elective (6 hours from Professional Aviation 405, 407, 490, 491)	6
	33
TOTAL SEMESTER HOURS	129

Aviation Flight courses are 1 semester hour credit. Six (6) hours of mathematics are required with at least three (3) hours beyond trigonometry. The courses taken will depend on results of ACT and/or math placement tests and student's preferences.

Only two (2) 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.

Three (3) hours of natural science electives must be in Biological Sciences.

Department of Social Sciences

Requirements For a Major

Thirty semester hours of prescribed courses in geography, political science, or sociology constitutes a major in those subjects in the Department of Social Sciences. Every student major must have a minor chosen after consultation with his/her adviser. Minor requirements are determined by the department in which it is offered. Every department major will consult with his/her adviser 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, and Sociology.

Requirements For a Minor

GEOGRAPHY: A minor in geography consists of 21 hours, of which nine must be 300 or 400 level.

POLITICAL SCIENCE: A minor in political science consists of 21 hours, of which nine must be 300 or 400 level.

SOCIOLOGY: A minor in sociology consists of 21 hours, of which nine must be 300 or 400 level.

Interdisciplinary Minor in Gerontology (24 semester hours) (At least 10 hours must be from courses 300 level or above)

Core Courses (15 semester hours)

Family and Child Studies 201, Family and Child Development OR Psychology 408, Human Growth and Development — 3 semester hours

Health & Physical Education 406 Health Aspects of Aging — 3 semester hours

Sociology 435 Sociology of Aging — 3 semester hours

Family and Child Studies 447 Issues in Gerontology — 3 semester hours

Practica — 3 semester hours
(Education 420; Health & Physical Education 112; Human Ecology 467, 477, 478, or 479; OR Sociology Practica)

ELECTIVES — 9 semester hours
Select 9 hours from the courses listed below. Courses selected must be approved by your advisor. It is strongly suggested that ALL students elect either Psychology 475 or Sociology 436 which relate to death and grieving.

Counseling 400: Introduction to Counseling
Family and Child Studies 210: Family Interpersonal Relationships
Family and Child Studies 320: Family Theory
Family and Child Studies 400: Contemporary Family Living
Family and Child Studies 420: Issues in Family Life Education
Food and Nutrition 203: Human Nutrition
Health & Physical Education 292: Preventive Health
Health & Physical Education 416: Adult Fitness Programming
Health & Physical Education 401: Recreation and Leisure for the Older Adult
Psychology 474: Psychology of Adult Learning and Development
Psychology 475: Death, Dying, and Grievance Process
Psychology 480: Psychology of Women
Psychology 499: Health Psychology
Sociology 308: The Family
Sociology 425: Family Therapy
Sociology 436: Grieving and Loss

Interdisciplinary Minor in Cultural Resources. See Department of History.

Geography Curriculum

Freshman Year	Semester Hours
English 101, 102, 201	9
Geography 203, 205	6
History 101, 102	6
Mathematics 110, 114	6
Health & Physical Education or ROTC	2
Speech 110	3
	32
Sophomore Year	
English 202	3
Foreign Language	6
Geography 230, Geography Electives	9
History 201, 202	6
Health & Physical Education or ROTC	2
Geology 111, 121, 112, 122	8
	34
Junior Year	
Art 290, Music 290 or Speech 290	3
Biological Science	4
Economics 215	3
Foreign Language	6
Geography 380, Geography Electives	9
Political Science 201, 302	6
Sociology 201	3
	34
Senior Year	
Geography Electives	6
Electives	18
Computer Literacy	3
Sociology 205 or 460	3
	30
TOTAL SEMESTER HOURS	130

Political Science Curriculum

Freshman Year	Semester Hours
English 101, 102, 201	9
Geography 230	3
History 101, 102, 201	9
Mathematics 110, 114 or 125 or Statistics 200	6
Science*	3
Speech 110	3
	33
Sophomore Year	
Art 290, Music 290 or Speech 290	3
Elective	3
English 202	3
Foreign Language	6
History 202	3
Political Science 201, 302, plus Elective	9

Science* 6

33

Junior Year
Economics 201, 202 6
Foreign Language 6
Philosophy 3
Political Science 345, plus 2 electives 9
Science* 3
Sociology 201, 202 6

33

Senior Year
Computer Literacy 3
Electives 15
Political Science 12

30

TOTAL SEMESTER HOURS 129

*Science courses must include at least one biological and one physical science and must include at least six hours from a two-quarter sequence.

Political Science (Pre-Law Concentration)

The pre-law concentration within political science is specifically designed to prepare students to succeed in law school. It consists of a political science major and an English minor together with selected other required courses, core curriculum courses, and electives. Entering freshmen must have a minimum 20 composite on the ACT. A 2.5 GPA is required to transfer into the program and must be maintained by students in the program. Students are advised that a minimum GPA of 3.0 or higher is suggested as the GPA typically necessary for admission to law school.

Students wishing to pursue this concentration should follow the political science curriculum outlined above the following differences:

History (101 and 102 or 201 and 202, instead of all four courses)
Science* (9 hours instead of 12)
Foreign Language (6 hours instead of 12)
Economics (May substitute Accounting 201, 202 for Economics 201, 202)
English (Must minor in English, including the following required courses: 260 or 303, 332 or 336 or 460, 415)
Law (Must take Business Law 255, 356 and Political Science 426, 427 - Constitutional Law)

Sociology Curriculum

Freshman Year	Semester Hours
English 101, 102	6
Foreign Language	6
History	6
Mathematics 110	3
Sociology 201	3
Speech 110	3
Natural Science*	6
	33
Sophomore Year	
Art 290, Music 290 or Speech 290	3
English (201, 202, or 303)	6
Foreign Language	3
Geography	3
Mathematics 114 or 125	3
Natural Science*	3
Sociology	3
Statistics 200	3
Electives	6
	33
Junior Year	
Computer Literacy	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, plus three additional Psychology hours	6
	33
Senior Year	
Electives	9
Philosophy 201	3
Psychology	3
Sociology 401 and nine additional Sociology hours	12
Political Science	3
	30
TOTAL SEMESTER HOURS	129

*Must include both physical sciences (chemistry, physics, geology) and biological sciences with at least 6 hours taken in a two-quarter sequence.

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, 430, 431, 432, 440, 466, plus nine additional hours in speech. In addition, 24 hours of specialized study in related areas must be approved by the student's adviser. Students interested in concentrating in theatre should consult the Director of the School of Performing Arts regarding the appropriate courses for a major concentration in theatre.The degree of Bachelor of Arts is awarded upon completion of either the Speech Curriculum or Preprofessional Speech Language Pathology Curriculum.

Requirements for a Minor

The following courses will be required to complete the Speech Communication minor: Speech 110, 211, 431, 440, 466, and six hours of upper division Speech Communication courses.

Louisiana Tech Forensics Program

The Louisiana Tech University Forensics 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.

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.

Speech Curriculum

Freshman Year	Semester Hours
Art 290 or Music 290 or Speech 290	3
Biological Sciences 101, 102	6
English 101, 102	6
Mathematics 110, 114	6
Speech 110, 201, 340	9
	30
Sophomore Year	
Computer Literacy	3
English 201 or 202	3
Foreign Language	6
History 201, 202	6
Political Science 201	3
Speech 200, 211, 222, Speech Elective	12
	33
Junior Year	
English Elective	3
Foreign Language	6
Physical Science Elective*	3
Sociology 201	3
Speech 315, 307, 407, 440	12
Electives or Minor	9
	36
Senior Year	
Electives or Minor	24
Science Elective	3
Psychology 414	3
	30
TOTAL SEMESTER HOURS	129

Pre-Professional Speech Language Pathology Curriculum

Freshman Year	Semester Hours
English 101, 102	6
Biological Science 101, 102	6
Fine Arts	3
Mathematics 110, Statistics 200	6
Speech 110, 202, 210, 222	10
	31
Sophomore Year	
Computer Literacy	3
English 201 or 202, 332	6
Physics 205	3
Psychology 102	3
Special Education 300	3
Speech 301, 302, 470	9
Biological Sciences 224	3
	30
Junior Year	
Family and Child Studies 201, 331	6
History 201, 202	6
Political Science 201	3
Speech 411, 413, 418, 443	12
Sociology 201	3
Minor	6
	36
Senior Year	
Family and Child Studies 301, 410	6
Health & Physical Education 150	2
Speech 465	2
Special Education 335	3
English 303	3
Sociology 410	3
Minor	15
	34
TOTAL SEMESTER HOURS	131

College of Education

Officers of Instruction

Jerry W. Andrews, Dean
Jo Ann Dauzat, Associate Dean and Acting Head, Behavioral Sciences
Fred Higginbotham, Acting Director, A. E. Phillips Laboratory School
Charles L. Foxworth, Director, Graduate Studies
Carolyn F. Talton, Director, Professional Laboratory Experiences
Samuel V. Dauzat, Head, Curriculum, Instruction, and Leadership
Billy J. Talton, Head, Health and Physical Education

Accreditation

The College of Education, one of six colleges of Louisiana Tech University approved by the University of Louisiana System, is accredited by the Southern Association of Colleges and Schools and the Louisiana State Board of Elementary and Secondary Education. 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 and advanced 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 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. 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.

In January of 1994 a new organization plan was approved and the Department of Curriculum, Instruction, and Leadership replaced the former Teacher Education area.

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, Industrial/Organizational Psychology, Music Education, Social Studies Education, Special 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. In 1994, authority was granted to offer the Ph.D. in Counseling Psychology and the Ed.D. in Curriculum and Instruction and Educational Leadership. (See Graduate Education section of catalog for graduate programs.)

Objectives

The College of Education is an integral part of Louisiana Tech University. From its founding in 1894, one of the purposes of the University has been the preparation of 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 University Teacher Education Council. The College offers a full array of programs for the preparation of human services personnel as stated in its mission.

The mission of the College of Education at Louisiana Tech University is to provide a broad range of undergraduate and graduate courses and human services degrees of a quality designed to meet the needs of students and employing agencies in the State, region, and nation. The mission of the College of Education is further defined through a commitment to the following goals:

1. To provide quality instructional experiences which lead to the acquisition of knowledge and skills essential for success in the human services professions;
2. To provide laboratory experiences which allow students to adapt to the work requirements of diverse communities now and in the future;
3. To provide experiences which allow graduates to serve as change agents through the implementation of new ideas, strategies, research, and technology;
4. To provide academic services for students, including counseling, career information, and academic intervention;
5. To provide quality courses and curricula based upon input from learned societies, research and practitioners;
6. To provide new courses and degree programs as needed for the preparation of quality human services personnel;
7. To promote interest in and motivation for continuous

learning;

8. To develop and maintain an active recruitment program to assure an academically strong and culturally diverse student body.

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 Advisory 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

The following scholarships are available in the College of Education. For information concerning these scholarships, contact the Office of the Dean of the College of Education.

Mary Wilson Scholarship

* Pursue a teacher preparation program in Elementary Education
* Demonstrate a need for financial assistance
* Minimum high school GPA of 3.0
* Demonstrate a commitment to the teaching profession
* Awarded in the spring preceding award dates
* Maintain a GPA of 3.0 on all works to keep scholarship (May be continued)

College of Education General Scholarships

(Number awarded varies each year)

* Pursue a degree offered through the College of Education
* Possess a strong ACT score and/or rank high in their graduating class
* Participated actively in a variety of high school activities

Lanette Southall Fisher Memorial Scholarship

* Sophomore Education major
* Will receive on a continuing basis for three years unless program completed earlier

Erma Flesher Memorial

* Enrolled in Social Studies Education curriculum
* Junior Standing
* Possess a strong academic record

Estelle Harris Memorial Scholarship

* Elementary Education major
* Earned GPA of 3.0 on all course work completed
* Have an ACT of 23 or higher
* Awarded annually (May be the same student)

John Henry Milling Scholarship

* Junior or Senior Education Major
* Earned GPA of 3.0 on all college work completed
* Demonstrate financial need
* Recommended by a faculty member or administrator in the student's area of study
* Awarded as funds are available and as a need occurs

Mary Ann Smalling Scholarship
Kalil Scholarship

* Library Science Major with overall GPA of 3.0 or better
* Exhibit leadership in library activities such as Alpha Beta Alpha, campus activities and community service
* Junior standing

Wilbur Bergeron Memorial Scholarship

* Enrolled in the College of Education
* Excellent academic record in high school and/or college

Enid Gladden Butler Scholarship (Graduate)

* Possess undergraduate degree from accredited college
* Active in professional organizations for teachers
* Recommended by teachers and administrators
* Active in community affairs
* Show evidence of effective classroom work
* Demonstrate need for financial assistance

Causey-Tanner Scholarship

* Enrolled in College of Education
* Demonstrate a commitment to the teaching profession
* Demonstrate a need for financial assistance
* Selected in the Spring preceding the effective date
* Satisfy the admission requirements of the College of Education
* May be from one to four years

John Cawthon Scholarship

* Enrolled in a teacher preparation program
* Demonstrate a need for financial assistance
* Have a minimum high school GPA of 3.0
* Selected in Spring preceding the effective date
* Demonstrate a commitment to the teaching profession
* Must maintain a GPA of 2.5 on all work pursued in order to retain scholarship

Mary Ross Higginbotham Scholarship

* Education major in the areas of Library Science, English, or Social Studies
* Show need for financial aid
* Junior standing and accepted into Upper Division
* Have a GPA of 3.0 or better

Linda Lou Allen Hudson Scholarship

* Junior of Senior Elementary Education major
* College GPA or 3.0 and minimum ACT of 21
* Maintain GPA of 3.0 to retain scholarship
* Possess strong interpersonal skills as evidenced by participation in high school activities
* Registered as a full-time student in Elementary Education
* Meet with donors before final select

Knots Memorial Scholarship

* Freshmen majoring in Physical Education
* Maintain a GPA of 2.5 over 3 quarters of one college year
* Maximum award if $500 per year

* American born citizen of U. S.
* Same student may receive continuously from Freshman year through Senior year
* Based on need as defined by the Financial Aid Office
* Recipient must within 15 days of notification of the receipt and before award, send his/her gratitude to donor

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 lower division of the College of Education must file an application obtained from the College of Education Dean's Office in which they show at least a 2.0 grade point average on all college work earned. Students interested in pursuing a degree in Education who do not have a 2.0 GPA may be advised by College of Education faculty while enrolled in Basic and Career Studies.

Upon admission to the College of Education, each student will be assigned an adviser who will assist in planning a program of study. This adviser will be available for conferences during the academic year and must be consulted at each registration.

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, unless changes are mandated by governing bodies.

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 who is not in attendance for four or more quarters (including summer quarter) must follow the curriculum in effect upon return to the institution.

Any student may choose to follow a newer curriculum so long as all requirements of the newer curriculum are fulfilled.

Students with a grade point average of less than 2.0 for 3 consecutive quarters 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 meet all entrance requirements and re-apply in writing to the Admission and Retention Committee. Appeal letters must be received in the Office of the Dean by the specified deadline.

Student Organizations in the College of Education

The College sponsors several student organizations which provide numerous opportunities for service, professional and leadership development, and social functions among student members and faculty. These organizations include the following:

1. ABA - Alpha Beta Alpha - National Professional Fraternity for Library Science
2. ACEI - Association for Childhood Education International
3. CEC - Student Council for Exceptional Children
4. Kappa Delta Pi - National Honor Society in Education
5. LAE-SP - Louisiana Association of Educators-Student Program
6. PERO - Physical Educational and Recreation Organization
7. Psi Chi - National Honor Society in Psychology
8. Psychology Society

Upper Division (Teacher Education Programs)

Students pursuing degrees in teacher preparation curricula must apply and meet all Upper Division requirements prior to enrolling in Upper Division classes.

After a student has earned or will have earned by the end of the current quarter a minimum of 46 semester hours of university credit in a teacher education program, the student may apply for Upper Division. Application forms are available in the Office of the Dean. An application must be made in which the student gives evidence of meeting the following qualifications:

1. Applicant must have earned at least 46 semester hours of college or university credits which include the following courses or their equivalents: Education 125; English (9 semester hours), physical education activity (2 semester hours for secondary and 1 semester hour for Elementary and Elementary K-4); science (9 semester hours); mathematics (6 semester hours); social studies (9 semester hours); and Speech 110.
2. Applicant must have a grade point average of 2.2 on all hours attempted and an earned grade point average of 2.5, with a grade of at least "C" in Education 125, English 101, 102; and Speech 110.
3. Applicant must possess those physical, emotional, and mental characteristics necessary for effective classroom performance.
4. A speech and hearing test administered by the Louisiana Tech Department of Speech must be completed with a 'satisfactory' rating.
5. All students admitted to the College of Education (Upper Division) after September 1, 1985, must have successfully completed the Communications Skills and General Knowledge components of the National Teacher Examinations. Records indicating successful completion of these examinations must be presented at the time of admission (Act 836, 1984 Louisiana Legislature).
6. Any student on academic or disciplinary probation or suspension is not eligible for admission to Upper Division.
7. Any student seeking admission to Upper Division who has been convicted of a felony may be denied admission.
8. All students admitted to the College of Education (Upper Division) after March 1, 1996, must complete 10 clinical experiences (outside of course requirements) by the end of the Student Teaching quarter.
9. All students are required to attend an orientation meeting (TBA at the beginning of each quarter) for the purpose of reviewing programmatic matriculation.

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 credits earned at this university and any other university attended, including courses taken more than once.

There is no limit on the number of times a student may

take the NTE.

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. Admission under this regulation is for one quarter only and will not meet the Upper Division eligibility requirements for student teaching. Students wishing to be considered for admission under the ten percent regulation must submit in addition to the application, a letter requesting admission to the College of Education Admission and Retention Committee prior to registration.

Deliberate falsification of the Upper Division application may result in the student being dropped from the College of Education. The application must be filled in completely, dated, signed by the student's adviser, and turned in to the Dean's office at least one week before the beginning of the quarter during which the applicant plans to 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.

Upper Division (Non-Certifying Programs)

Psychology, and Health and Physical Education (Non-Certifying) majors may apply for Upper Division upon completion of 30 semester hours. An application must be made in which the student gives evidence of meeting the following qualifications;

1. Applicants must have earned 30 semester hours of university credits which include the following courses or their equivalents: English 101, 102; Math 110; and Speech 110 or 377. Also, Health and Physical Education, Fitness/ Wellness Management majors must complete 18 semester hours of HPE courses including 3 different two-hour sport series courses. Psychology majors must complete 6 hours of Psychology including Psychology 102 or 202.

2. Applicants must have a grade point average of 2.0 on all hours earned with a grade of at least "C" in English 101, 102, Speech 110 or 377, and all courses in major area.

Deliberate falsification of the application may result in being dropped from the College of Education. The application must be filled in completely, dated, signed and turned into 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.

Degrees

Students who complete a 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 agriculture education, business education, elementary education, English education, mathematics education, science education, social studies education, health and physical education and fitness/wellness, speech education. The degree of Bachelor of Arts is awarded to students completing curriculum requirements in art education, French education, music education, psychology, Spanish education, special education, and speech, language, and hearing therapy.

The Master of Arts degree is awarded in the following areas: counseling, industrial/organizational psychology, and educational psychology. The Master of Science degree is awarded in the following areas: curriculum and instruction, and health and physical education. The Master of Education degree (Fifth Year Program) is awarded in the following areas: agricultural education, art education, business education, elementary education, English education, foreign language education, math education, music education, science education, speech education, social studies education and health and physical education.

The Specialist degree in Education is awarded in the following areas: counseling and reading.

The Ph.D. is awarded in counseling psychology and the Ed.D. is awarded in curriculum and instruction and educational leadership.

Louisiana Tech and Grambling State University offer a cooperative 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.

Graduation Requirements

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 and a cumulative GPA of 2.2 (on a scale of 4.0) is required for graduation.

In addition to completing the general graduation requirements of Louisiana Tech, students pursuing a degree program which leads to Louisiana teacher certification must post certifying scores on required components of the National Teacher Examination in order to be eligible for certification.

Students completing a non-teacher certification degree program offered through the College of Education must earn a grade no lower than "C" in all specialized academic courses. A cumulative grade point average of 2.0 (on a 4.0 scale) is required for graduation.

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 adviser, the appropriate department head, and Dean.

Fine Arts

The three semester hours of Fine Arts in each curriculum except elementary education shall be taken from the following: Art 290, Health and Physical Education 280, Music 290, or Speech 290. Elementary and K-4 majors are required to take Art 301 and Music 334.

Second Teaching Areas Available to Education Majors

Second teaching areas are required in all teacher education curricula except agricultural, art, elementary, business, music, speech, language, and hearing therapy, special education, and science.

The specific course requirements for second teaching areas in the different fields are as follows:

BUSINESS:

Economics 215 and 312, Accounting 201, 202, and 303 or 307 or 308, Office Administration 102, 104, 250, and 307, Business Law 255 or 356, Marketing 300, and Education 410.

ENGLISH:

Education 403, English 101, 102, 201, 202, 332, 336, 415, 416 or 417 and a 3 hour English elective at the 400 level.

FOREIGN LANGUAGE:

1. Secondary - 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. Certification is awarded in each language individually.

2. All-level and elementary - certification (1-12) in a foreign language. Secondary foreign language certification may be converted to all-level certification with an additional 9 hours of professional elementary education classes. Elementary Education certification may also be converted to include certification to teach a foreign language in the elementary school by taking 15 hours of that language and proving oral proficiency.

JOURNALISM:

101, 102, 310, 320, 2 of the following courses: 350, 353, 355; and 5 hours of electives.

LIBRARY SCIENCE:

201, 301, 302, 303, 305, Education 420, and 310.

MATHEMATICS:

111, 112, 113, 230, 231, 232, and 307.

SCIENCE:

Certification in any science area requires credit (grade of "C" or better) or proficiency in college algebra and trigonometry as the minimum math requirements. Laboratories normally associated with each science shall be taken.

General Science - Biological Science 120, 121, 122, 123; Chemistry 100, 101, 102, 103, 104; Physics 209, 261, 210, 262; Geology 111, 121, 112, 122

Biology - Bacteriology 214; Biological Science 120, 121, 122, 123, 124, 125, 210, 313, 315; one year of chemistry including labs.

Chemistry - Chemistry 100, 101, 102, 103, 104, 205, 250, 251, 253, 252, 254

Earth Science - Geology 111, 121, 112, 122, 200, 303, 305, 318

Physics - Physics 201, 261, 202, 262, 207, 304, 416, 417, 418, 419, 465; Math 230

PHYSICAL EDUCATION:

202, 251, 326, 405, 408, 457; plus 6 hours HPE Sport Series and 4 semester hours of HPE techniques on Sport Series.

PHYSICAL EDUCATION FITNESS/WELLNESS : (Does not lead to Louisiana Teacher Certification)

Physical Education Fitness/Wellness Minor requires 22 hours. Courses: HPE 202, 326, 405, 407, 408, 409, 256; plus 3 semester hours of HPE (choose: HPE 316, 406, 410, 414, 416, 418, F&Nu 253); plus 2 semester hours of HPE (choose: Lifetime Sports Series 255A or 257C).

PSYCHOLOGY MINOR: (Does not lead to Louisiana Teacher Certification)

Psychology Minor requires 21 hours. Courses: Psychology 102, 202, 300, Two Psychology 300 level courses, and Two Psychology 400 level courses.

SOCIAL STUDIES:

History 101, 201, 202, 460; Political Science 201 and 3 hours from Political Science 304, 310, 320, or 330; Sociology 201; Geography 203 and 230; Economics 201 or 215.

SPEECH:

110, 200, 201, 211, 315, 340, 307, 407, 440, plus 3 hour Speech Elective.

Interdisciplinary Minor in Gerontology (24 semester hours) (At least 10 hours must be from courses 300 level or above)

Core Courses (15 semester hours)

Family and Child Studies 201, Family and Child Development OR Psychology 408, Human Growth and Development — 3 semester hours

Health & Physical Education 406 Health Aspects of Aging — 3 semester hours

Sociology 435 Sociology of Aging — 3 semester hours

Family and Child Studies 447 Issues in Gerontology — 3 semester hours

Practica — 3 semester hours
(Education 420,; Health & Physical Education 112; Human Ecology 467, 477, 478, or 479; OR Sociology Practica)

ELECTIVES — 9 semester hours
Select 9 hours from the courses listed below. Courses selected must be approved by your advisor. It is strongly suggested that ALL students elect either Psychology 475 or Sociology 436 which relate to death and grieving.

Counseling 400: Introduction to Counseling
Family and Child Studies 210: Family Interpersonal Relationships
Family and Child Studies 320: Family Theory
Family and Child Studies 400: Contemporary Family Living
Family and Child Studies 420: Issues in Family Life Education
Food and Nutrition 203: Human Nutrition

Health & Physical Education 292: Preventive Health
Health & Physical Education 416: Adult Fitness Programming
Health & Physical Education 401: Recreation and Leisure for the Older Adult
Psychology 474: Psychology of Adult Learning and Development
Psychology 475: Death, Dying, and Grievance Process
Psychology 480: Psychology of Women
Psychology 499: Health Psychology
Sociology 308: The Family
Sociology 425: Family Therapy
Sociology 436: Grieving and Loss

Guidelines for Clinical Experiences

Clinical experiences, both campus and field based, form an integral part of the various teacher preparation programs in the College of Education. Most professional courses require clinical experiences that will prepare the student for his or her own classroom in the future. All students are placed in public schools and are assigned by the Office of Laboratory Experiences. Students are cautioned to always wear the identification badge provided by the Office of Laboratory Experiences while in a school. This name tag assures that you have a legitimate reason to be on a school site.

In addition to clinical experiences that are required in various methods courses, there are three major requirements of all students completing certification programs.

A. External Clinical Experiences

Beginning March 1, 1996, a variety of Clinical Experiences are provided through the College of Education. While the majority are course-related, others are completed over an approximate two year period. Beginning in Education 125, education majors are apprised of the minimum of 10 Clinical Experiences designed to enhance their classroom preparation and readiness. Examples include attendance of professional seminars, visits to schools during the opening and closing of an academic year, and membership in professional organizations. While enrolled in Education 125, a folder is established for each education major and held in the Office of Laboratory Experiences. The purpose of this folder is to provide a way to record completion of these activities. The Director of Laboratory Experiences will oversee these activities.

B. Practicum Experiences

During the early advisement period of the quarter immediately preceding enrollment in any practicum course, students must complete an application in the Office of Laboratory Experiences, Woodard Hall 102. Failure to do so will result in delay of placement and initiation of field experiences.

Practica experiences are provided in the following courses:

Education 401 Directed Observation and Pre-Student Teaching Experiences. This course requires that the education major will complete a minimum of 35 clock hours in the classroom in which he/she will complete student teaching. A significant portion of the 35 hours is spent planning lessons, teaching selected lessons, and general preparation for student teaching. This course should immediately precede Student Teaching. The final evaluation marking for practicum students is S-F (satisfactory or failure).

Education 420 This course offers structured laboratory experiences in several areas of specialization in education including Adult Education, Elementary Education, Kindergarten, Library Science, Middle Grades, Principalship (elementary or secondary), Reading, Special Education, and Supervision. The final evaluation marking for practicum students is S-F (satisfactory or failure).

Education 575 This practicum provides the student enrolled in the Fifth Year Master of Education degree an opportunity to gain experiences that will prepare him/her for completion of the Internship, Education 576. A minimum of 100 clock hours is required at the school site in which the Internship will be completed. Specific requirements are available through the Director of Laboratory Experiences. This course should immediately precede Education 576, Internship in Education. The final evaluation marking for practicum students is S-F (satisfactory or failure).

Each practicum is intended to provide opportunities for students to put theory into practice. Each practicum requires a minimum of 100 clock hours of experience at the teaching station.

Practicum students are supervised by a cooperating teacher and a college supervisor. The college supervisor also critiques regularly with the practicum student. Mid-quarter and final evaluations are provided for the student. The final evaluation marking for practicum students is S-F (satisfactory or failure).

Adult Education Practicum

Certification requirements for full-time adult education teachers and supervisors include a minimum of three semester hours of Adult Education Practicum. The practicum is a planned experience in cooperation with the college supervisor and an institution or agency for practical application of adult learning theories. The Adult Education Practicum student will complete ten hours a week in practicum activities and a total of 100 hours.

Elementary Practicum

The Elementary Practicum is an opportunity for students to gain teaching experience at the elementary level under capable supervision. It gives the student a chance to learn about the actual work of the teacher in the classroom and in special activities. It enables the student to gain insight into the teacher's relations with other school workers. It is a laboratory experience in which the student can plan and develop learning experiences with children and secure supervision while doing it. It permits the student to focus the ideas gained in college courses and individual experiences upon actual school problems at the elementary school level.

The Elementary Practicum student will complete ten hours a week in classroom activities and a total of 100 hours for the quarter.

Kindergarten Practicum

The purpose of the Kindergarten Practicum is to provide the opportunity to meet state certification requirements for adding kindergarten endorsement to an elementary grades teaching certificate. Students will complete ten hours of kindergarten activities each week, for a total of 100 hours. Students are encouraged to arrange their practicum hours in a flexible manner so that the entire kindergarten school day is experienced some time during the quarter.

Library Science Practicum

The purpose of the Library Science Practicum is to provide the student with hands-on, practical experience in an actual library setting.

The Library Science Practicum student will complete ten hours of library activities each week, with a total of 100 hours required for the quarter.

Middle Grades Practicum

The purpose of the Middle Grades Practicum is to provide an opportunity for students to teach a variety of content lessons in grades 5 to 8. The student is assigned to several teachers with the added benefit of seeing a variety of classroom management techniques and classroom environments. Students spend a total of ten hours per week in a classroom setting and meet in a weekly seminar on campus.

Principalship Practicum

The practicum in principalship is intended to provide realistic experiences for prospective principals in confronting and dealing with everyday problems in school administration. The experiences will be designed to provide opportunities for practicum students to deal with situations which develop skill in understanding and maintaining the operation of schools as well as opportunities which develop understanding and skill in the planning and management of change.

The practicum requires a minimum of 100 clock hours of on-the-job-experience under the supervision of a practicing school principal. Students are expected to complete a minimum of ten hours of activities each week outside the regular school day. There should be at least two full-day experiences in a school setting that is different from the one in which the majority of the 100 clock hours are completed.

Practicum students will be involved with activities in various functional areas. The experiences will be determined with the mutual involvement of the student, the supervising principal, and the university supervisor.

Reading Practicum

Through the Reading Practicum, the student who is majoring in elementary education has the opportunity to explore the teaching of reading in the elementary classroom under the direction of a master teacher. Students registering for the Reading Practicum must have completed Education 324. Completion of Education 323 prior to Reading Practicum is advised.

Students enrolled in the Reading Practicum are required to spend ten hours a week in the elementary school classroom (100 hours for the quarter). (The hours involved are 8:00-9:50 a.m., Monday through Friday.)

In addition to the experience in the classroom, the elementary major who is enrolled in Reading Practicum will attend a meeting each week with the college supervisor. At this time classroom experiences will be discussed, model lessons will be presented by the college supervisor, methods and teaching techniques will be compared, and topics of interest to the students will be discussed. The college supervisor will also work individually with each student throughout the practicum experience by observing the student regularly and conferencing with the student often.

Supervision Practicum

The practicum in supervision is intended to provide realistic experiences for prospective supervisors by offering many opportunities to put theory about supervision into practice. These practical experiences should be related to major functional areas of supervision.

The practicum requires a minimum of 100 clock hours of on-the-job-experience under the supervision of a practicing school supervisor. Students are expected to complete a minimum of ten hours of activities each week outside of the regular school day. There should be at least two full-day experiences with the assigned school supervisor.

Student Teaching/Internship

Student Teaching/Internship is the culminating activity in all teacher preparation programs. It requires placement in a school on an all-day basis (8:00 a.m. - 3:00 p.m. minimum) and participation in all activities that are required of the cooperating teacher. Placement is restricted to a ten-parish area of north Louisiana. These systems are: Bienville, Bossier, Caddo, Claiborne, Jackson, Lincoln, Monroe City, Ouachita, Union, and Webster.

Students apply for student teaching/internship during the early advisement period of the quarter immediately preceding the student teaching/internship quarter. Applications are available in the Office of Laboratory Experiences, Woodard Hall 102. Failure to apply in a timely manner may result in a delay of placement and initiation of responsibilities.

The Board of Elementary and Secondary Education has set the requirement that a minimum of 270 clock hours will be spent in the classroom during student teaching. Of the 270 hours, 180 hours minimum is spent in direct teaching activities with a significant portion of this time devoted to full-time teaching. This time requirement is met by beginning the student teaching/internship activity on the first day of class and continuing until the last day of class in the respective quarter. Additional specific requirements are found in the Student Teaching Handbook available in the University Bookstore.

No more than three semester hours may be taken with student teaching. No required education courses may be taken with or following 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 3 p.m., Monday through Friday. No conventional grades or quality points are given. The final evaluation marking for student teaching is S-F (satisfactory or failure).

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 2.2 GPA on cumulative hours pursued and a 2.5 GPA on hours earned.

3. Must be recommended for student teaching by faculty adviser and approved by the Student Teacher Screening Committee.

4. All required professional education courses must be completed prior to student teaching.

5. Must have earned at least a "C" in any professional education or specialized academic education course. (both major and minor areas).

6. Must have completed all psychology courses.

7. Must have completed all coursework in major area.

8. If a student has a felony conviction record, he/she must first be approved for student teaching by the Student Teaching Screening Committee.

B. Additional Prerequisites for Elementary Education Majors

1. Must have successfully completed Education 310, 322, 323, 324, 325, 326, 420 (Reading and Middle Grades Practicum), 402, 455, 471, 475, Psychology 204, and 408.

2. In addition, K-4 majors must have completed Education 431, 432, 441, and 471. Students may enroll in one of these courses during a student teaching quarter, with advisor approval.

C. Additional Prerequisites for Secondary Education Majors

1. Must have successfully completed Education 310, 380, 401, 402, 403, 475, and Psychology 204 and 206.

2. The special methods course(s) in student teaching area(s) must be completed before student teaching.

3. Must complete Education 401, Directed Observation, the quarter immediately preceding student teaching.

D. Additional Prerequisites for Health and Physical Education Majors

1. Must have successfully completed Psychology 408, Education 310, 380, 401, 403, 420 (middle grades practicum), 455, 475, HPE 202, 305, 326, 402, 405, 408, 414, 457, and the minor methods course.

2. Should have completed all coursework in major and minor areas.

3. Must have completed Education 401, Directed Observation, the quarter immediately preceding student teaching.

E. Additional Prerequisites for Speech, Language, and Hearing Therapy Majors

1. Must have successfully completed Psychology 204, 205, and 206, Education 310, 323, 324, 355, 401, and 475.

2. Must have completed Education 401 the quarter prior to student teaching.

F. Additional Prerequisites for Special Education.

1. Must have successfully completed all required psychology courses, Education 125, 310, 323, 324, 402 420 (Reading Practicum), 420 (Elem), 445, 471, 475.

2. Additional prerequisites for Mild/Moderate-Elementary majors are Special Education courses 300, 301, 302, 340, 341, 375, 475, and 490. Special Education 495 may be taken with student teaching.

Induction Year

The College of Education offers assistance to first-year teachers through an Induction Year Program. Each first-year teacher from Louisiana Tech University who is employed in the region is contacted by a faculty representative and offered assistance in conjunction with the local school system.

Alternative Certification Program

The College of Education offers alternative programs for the certification of teachers. Additional information may be obtained by contacting the Office of the Dean.

Department of Behavioral Sciences

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, 125	6
Speech 110	3
Psychology 102, 202	6
Biological Sciences 120, 121	4
Health & Physical Education	2
	33
Sophomore Year	
English 201 or 202	3
English 303 or Journalism 101	3
Health & Physical Education	2
Psychology 300, 301, 304, 310	12
Sociology 201	3
Political Science 201	3
Biological Sciences 224	3
Psychology Elective	3
	32
Junior Year	
Psychology 302, 307, 312, 321, 461	15
Business Law 255	3
Management 311	3
Special Education 300	3
Fine Arts Elective	3
Electives	6
	33
Senior Year	
Psychology 407, 418, 450, 465 or 400	12
Psychology Elective	3
Counseling 400	3
Physical Science	3
Electives	10
	31
TOTAL SEMESTER HOURS	129

Requirements for a minor in Psychology: 21 hours approved by the Psychology adviser.

Special Education Curriculum

Freshman Year	Semester Hours
Biological Sciences 102	3
Biological Sciences 201	3
English 101, 102	6
Geography 203	3

Health & Physical Education Activities	2
Health & Physical Education 150	2
History 201	3
Physics 205	3
Political Science or Sociology 201	3
Speech 110	3
	31

Sophomore Year	
Education 125	1
English 201, 202	6
Electives	2
History 460	3
Mathematics 110, 125	6
Psychology 204	3
Biological Sciences 224	3
Special Education 300	3
	27

Junior Year	
Education 310, 324, 390, 402, 402(R)	12
Fine Arts Elective	3
Special Education 445	3
	18

The remainder of the hours will be selected depending upon the area of specialization.

Mild/Moderate Elementary

Food and Nutrition 223	2
Health & Physical Education 130	1
Library Science 201	3
Psychology 205	3
Education 323, 416, 420(E), 472, 475	20
Special Education 301, 302, 340, 341, 375, 475, 490, 495	24
Elective	3
	56

Mild/Moderate Secondary*

Psychology 206	3
Education 416, 420(S), 472, 475	17
Special Education 301, 302, 340, 341, 375, 471, 472, 475, 490, 495	30
Electives	6
	56

Preschool Handicapped

Family & Child Studies 301, 321	6
Food & Nutrition 223, 233	3
Human Ecology 467	3
Health & Physical Education 130, 417	4
Library Science 201	3
Psychology 205	3
Education 401, 406(M/M), 416(S/P), 475	15
Special Education 340, 460, 461, 462, 463, 464	18
Elective	3
	58

Severe/Profound

Counseling 400	3
Education 416, 475	11
Health & Physical Education 130, 417	4
Food & Nutrition 223	2
Psychology 205, 408	6
Special Education 303, 340, 341, 376, 462, 464, 465, 477, 490, 495	30
	56

*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, Education 403

Math: 111, 112, 113, 230, 231, 232, 307

Science: Please check with your adviser for courses.

Social Studies: History 101, 202; Political Science 201, 304; Sociology 201; Geography 230; Economics 200, 215

Department of Health and Physical Education

Health and Physical Education Curriculum

(Leads to Teacher Certification)

Freshman Year	Semester Hours
Biological Sciences 212	3
English 101, 102, 201, 202	12
Health & Physical Education 290	3
History 201, 202	6
Mathematics 110, 125	6
Speech 110	3
Education 125	1
	34

Sophomore Year	
Health & Physical Education 202, 250, 251, 292	11
Health & Physical Education Select One 293, 300, 350	3
Physics 205	3
Physics 206 or Biological Sciences 120	3
Political Science 201	3
Psychology 408	3
Social Studies Elective	3
Electives (minor)	6
	35

Junior Year	
Education 310, 380, 420	9
Electives (Minor)	3
Fine Arts	3
Health & Physical Education 305, 326, 405	8
Health & Physical Education Team Sport Series Select Two 265, 266, 267	4
Health & Physical Education Lifetime Sport Series Select One 255, 256, 257	2
Biological Sciences 224	3
Education (Second Methods)	3
	35

Senior Year	
Education 401, 403, 416, 455, 475	18
Elective (minor)	3
Health & Physical Education 402, 408, 409, 414, 457	12
Health & Physical Education (Electives)	4
	37
TOTAL SEMESTER HOURS	141

HPE 114, 115, 116, 117 - Varsity Sport Participation will not be substituted for HPE requirement.

Fitness / Wellness Management Curriculum

(Does not lead to Teacher Certification)

Freshman Year	Semester Hours
Economics 215	3
English 101, 102	6
Fine Arts Elective	3

Health & Physical Education Activity (Lifetime Sports Series) . 2
Health & Physical Education 112 (Senior Citizen Exercise) . . 1
History 201 . . . 3
Mathematics 110, 125 . . . 6
Physics 205 . . . 3
Psychology 102 . . . 3

30

Sophomore Year
English 201, 202 . . . 6
Food & Nutrition 103, 203 . . . 4
Health & Physical Education 202, 290, 292, 300 . . . 12
Health & Physical Education 112 (Weight Training) . . . 1
Health & Physical Education Activity (Lifetime Sports Series) . 2
Management 201 or 340 . . . 3
Physics 206 . . . 3
Biological Sciences 224 . . . 3

34

Junior Year
Accounting 201 . . . 3
Education 205 . . . 1
Food & Nutrition 253 . . . 3
Health & Physical Education 316, 326, 405, 406, 408, 409 . 15
Health & Physical Education Activity (Time Sport Series) 2
Health & Physical Education 112 (Aerobic Activity) . . . 1
Health & Physical Education 112 (Elective) . . . 1
Psychology 300 . . . 3
Speech 377 . . . 3

32

Senior Year
Electives . . . 6
Health & Physical Education 407, 410, 414, 415, 416, 418 . . . 21
Marketing 300, 420 . . . 6

33

TOTAL SEMESTER HOURS . . . 129

No grade less than "C" is acceptable in English 101, 102, all Health & Physical Education major courses, Biological Sciences 224, and Speech 377. Varsity athletics (HPE 114, 115, 116, 117) cannot be substituted for HPE activities.

Health and Physical Education Curriculum Recreation Option

(Does not lead to Teacher Certification)

Freshman Year — Semester Hours
Electives . . . 2
English 101, 102, 201 . . . 9
Health & Physical Education 225, 290 . . . 6
Health & Physical Education Activity . . . 1
History 201, 202 . . . 6
Mathematics 110, 125 . . . 6
Physics 205 . . . 3

33

Sophomore Year
Education 205 . . . 1
English 202 . . . 3
Health & Physical Education 226, 300, 304, 317 . . . 12
Health & Physical Education Activities . . . 2
Physics 206 or Zoology 111 . . . 3
Psychology 206 . . . 3
Sociology 201 . . . 3
Speech 110 or 377 . . . 3
Biological Sciences 224 . . . 3

33

Junior Year
Art 240 . . . 3
Arts Elective . . . 3
Electives . . . 7
Health & Physical Education 320, 326, 355 . . . 9
Health & Physical Education Activity . . . 1
Plant Science 301 or 302 . . . 3
Journalism 450 . . . 3
Political Science 201 . . . 3

32

Senior Year
Health & Physical Education 404, 405, 406, 408, 410, 414 . 17
Health & Physical Education 415 . . . 6
Health & Physical Education Activities . . . 3
Electives . . . 6

32

TOTAL SEMESTER HOURS . . . 130

No grade less than "C" is acceptable in English 101, 102, and all Health & Physical Education major courses. Varsity athletics cannot be substituted for HPE activities. Three assists are required.

Department of Curriculum, Instruction, and Leadership

Middle grades (5-8) certification may be added to a valid Louisiana teaching certificate at the secondary level by completing: Education 455, and Education 420 (middle grades practicum).

Agricultural Education Curriculum

Freshman Year — Semester Hours
Agricultural Business 209 . . . 1
Animal Science 111 . . . 4
Biological Sciences 120, 121, 124, 125 . . . 8
Economics 215 . . . 3
English 101, 102 . . . 6
Mathematics 110 & 114 or 111 & 112 . . . 6
Plant Science 101 . . . 3
Social Science Elective . . . 3
Speech 110 . . . 3

37

Sophomore Year
Agricultural Education 250 . . . 3
Agricultural Business 211 . . . 2
Bacteriology 210 . . . 3
Chemistry 130, 131, 132, 133 . . . 10
Education 125 . . . 1
English 201, 202 . . . 6
Forestry 213 . . . 3
Health & Physical Education 280 . . . 3
Life Sciences 323 . . . 3
Electives . . . 2

36

Junior Year
Agricultural Business 441 . . . 3
Agricultural Education 450 . . . 3
Agriculture Specialization* . . . 11
Education 380 . . . 3
Forestry/Life Science 309 . . . 3
History 202 . . . 3
Plant Science 200, 202 . . . 4
Plant Science 301 or Horticulture Elective . . . 3

Psychology 206 3

36

Senior Year
Agricultural Business 206 or 321 & 411 4
Agricultural Business 320, 402 or 430 3
Agricultural Education 301 3
Animal Science 301 3
Education 401, 404, 416 13
Health & Physical Education Elective 1
Plant Science 315 4
Psychology 300 3

34

TOTAL SEMESTER HOURS 143

*Students may specialize in one area of agriculture. Before registering as a junior, each student must develop a program of specialization (11 credit hours within technical agriculture) by consulting with his/her advisor and with the approval of the department head.

Art Education Curriculum

Freshman Year	Semester Hours
Art 115, 116, 117, 120, 125, 126	18
Biological Science	3
English 101, 102	6
Health & Physical Education Activities	2
Mathematics 110	3
Speech 110	3
	35
Sophomore Year	
Art 121, 215, 216, 220	12
Education 125	1
English 201, 202	6
Fine Arts	3
Health & Physical Education 150	2
History 201	3
Mathematics 125	3
Psychology 204	3
	33
Junior Year	
Art 225, 367	6
Art Elective	3
Education 310, 360, 380, 402	11
History 202	3
Physical Science	3
Political Science 201	3
Psychology 206	3
Science Elective	3
	35
Senior Year	
Art 240, 241	6
Education 401, 403, 416, 450, 475	18
Science Elective	3
Social Studies Elective	3
Special Education 300	3
	33
TOTAL SEMESTER HOURS	136

Business Education Curriculum

Freshman Year	Semester Hours
Biological Sciences 101	3
English 101, 102	6
Health & Physical Education Activities	2
Math 110, 125	6
Office Administration 102, 104, 250	9
Physical Science Elective	3
Political Science 201	3
Speech 110	3
	35
Sophomore Year	
Accounting 201, 202	6
Management Information Systems 101	3
Economics 201, 202	6
Education 125	1
English 201, 202	6
History 201 or 202	3
Office Administration 210	3
Psychology 206	3
Biological Sciences 102	3
	34
Junior Year	
Office Administration 307	3
Education 380, 310, 402	8
Electives (in option)**	9
Business Law 255	3
Management 311	3
Marketing 300	3
Psychology 204	3
Special Education 300	3
	35
Senior Year	
Accounting 303, or 307, or 308	3
Education 401, 403, 410, 416, 462, 475	21
Business Communications 305	3
Science Elective***	3
Fine Arts	3
	33
TOTAL SEMESTER HOURS	137

If certification in computer literacy is desired, student should take Education 445, 447, and 448 in addition to the 137 hours.

****Shorthand Option (9 hours)**
Office Administration 214, 215, 216

****Business Administration Option (9 hours)**
Business Law 356 3
Economics 312 3
Finance 318 3

***At least 6 hours must be taken in a 6-hour sequence.

Elementary Education Curriculum

Freshman Year	Semester Hours
English 101, 102, 201	9
Geology 111	3
Health & Physical Education 290	3
Health & Physical Education activities	1
History 201, 202	6
Mathematics 110, 203	6
Political Science 201	3
Speech 110	3
	34
Sophomore Year	
Biological Sciences 101, 102	6
Biological Sciences 201, 123	4
Education 125, 310	4
English 202	3
Food & Nutrition 223	2
Geography 203, 230	6

Health & Physical Education 150 2
Library Science 201 3
Mathematics 204 3
Psychology 204 3

36

Junior Year
Art 301 3
Education 322, 323, 325, 326 10
Mathematics Elective (Mathematics 111 or 125 or Statistics 200) 3
English 332 3
Health & Physical Education 340 3
Special Education 300 3
Physics 205 3
Psychology 205, 206 6

34

Senior Year
Education 475, 324, 402, 420(M-G practicum), 420(R practicum), 416, 455 25
English 336 3
History 460 3
Music 334 3

34

TOTAL SEMESTER HOURS 138

Library Science Certification

In addition to the basic Elementary curriculum the following courses will be required to complete this certification: Education 420(LS), Library Science 301, 302, 303, and 305.

Kindergarten - 4 Curriculum

Freshmen Year — Semester Hours
English 101, 102, 201 9
Biological Sciences 101, 102 6
Health & Physical Education Activity 1
History 201, 202 6
Math 110, 203 6
Political Science 201 3
Speech 110 3

34

Sophomore Year
Art 301 3
Biological Sciences 201 3
Mathematics 204 3
Education 125, 310 4
English 202, 332 6
Food & Nutrition 223 2
Geography 230 3
Health & Physical Education 290, 150 5
Library Science 201 3
Psychology 204 3

35

Junior Year
Education 322, 323, 325, 326, 431, 432, 441 19
Health & Physical Education 340 3
Mathematics Elective (Mathematics 111 or 125 or Statistics 200) 3
Special Education 300 3
Physics 205 3
Psychology 205 3

34

Senior Year
Education 475, 324, 402, 471, 420R, 416F(K), 416F(Elem) . 25
Family & Child Studies 301 3
History 460 3
Music 334 3

34

TOTAL SEMESTER HOURS 137

English Education Curriculum

Freshman Year — Semester Hours
Biological Sciences 101 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
Biological Sciences 102 3
Education 125 1
Electives (minor) 6
English 202, 332 6
Fine Arts 3
Health & Physical Education 150 2
Political Science 201 3
Psychology 204, 206 6
Social Science Elective 3

33

Junior Year
Education 310, 350, 380 9
English 336, 415, 422, 403 or 404 12
English 413, 414 or 440 3
Library Science 303, 305 6
Science Elective 3
Electives (minor) 3

36

Senior Year
Education 401, 402, 403, 475, 416 17
Electives (minor) 3
English 416 and 417 6
English 406 3
Special Education 300 3

32

TOTAL SEMESTER HOURS 133

French Education Curriculum

(See special requirements for French Education listed under Second Teaching Areas: Foreign Language.)

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 Sciences 101, 102 6
Education 125 1
Elective (minor) 3
Fine Arts 3
French 202, 301, 302 9
Health & Physical Education 150 2
Mathematics 125 3

Physical Science . . . 3
Political Science 201 . . . 3

33

Junior Year
Education 310, 351, 380 . . . 9
English 202 . . . 3
French 304, 305 . . . 6
French Upper Division Electives . . . 6
Psychology 204, 206 . . . 6
Social Studies Elective . . . 3

33

Senior Year
Education 401, 402, 403, 416, 475 . . . 17
Electives (minor) . . . 6
French 450, 470 . . . 6
Science Electives . . . 3
Special Education 300 . . . 3

35

TOTAL SEMESTER HOURS . . . 133

*As the scheduling of upper-division French courses is determined by changing enrollment patterns, students who plan to complete their degree within the shortest time possible may have to take one or more French courses through the Inter-Institutional Cooperative Program at Grambling State University.

Library Science Minor

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 certification or a secondary education degree plan with a minor in library science and be certified as a school librarian. Students wishing to qualify for public library and civil service library positions may take library science courses along with any existing curriculum. The following courses are required: Library Science 201, 301, 302, 303, 305, Education 310, and Library Science 435 or Education 420.

Mathematics Education Curriculum

Freshman Year — Semester Hours
Biological Sciences 101, 102 . . . 6
English 101, 102, 201 . . . 9
Health & Physical Education Activities . . . 2
History 201, 202 . . . 6
Mathematics 111, 112, 230 . . . 9
Speech 110 . . . 3

35

Sophomore Year
Education 125 . . . 1
Electives (minor) . . . 3
English 202 . . . 3
Health & Physical Education 150 . . . 2
Mathematics 231, 232, 113 . . . 9
Physics 205, 206 . . . 6
Political Science 201 . . . 3
Psychology 204, 206 . . . 6

33

Junior Year
Computer Science 100 . . . 3
Education 310, 356, 380 . . . 9
Electives (minor) . . . 6
Fine Arts . . . 3
Mathematics 233, 307, 308 . . . 9
Social Sciences Elective . . . 3
Statistics 200 . . . 3

36

Senior Year
Education 401, 402, 403, 416, 475 . . . 17
Electives (minor) . . . 6
Mathematics 318, 401 & 311 or 350 or 460 . . . 9
Special Education 300 . . . 3

35

TOTAL SEMESTER HOURS . . . 139

Music Education Curriculum

Freshman Year — Semester Hours
English 101, 102 . . . 6
Mathematics 110, 125 . . . 6
Health & Physical Education Activity* . . . 1
Music (Applied) . . . 11
Music 102, 103, 104, 108, 109, 110 . . . 9
Speech 110 . . . 3

36

Sophomore Year
Biological Sciences 101, 102 . . . 6
Education 125 . . . 1
English 201 . . . 3
Health & Physical Education Activity* . . . 1
Music 201, 202, 203, 317, 318, 319 . . . 12
Music (Applied) . . . 3
Political Science 201 . . . 3
Psychology 204 . . . 3
Physical Science . . . 3

35

Junior Year
Education 310, 380 . . . 6
English 202 . . . 3
History 201, 202 . . . 6
Music (Applied) . . . 8
Music 304 or 401, 310, 303 or 314 . . . 8
Physics 465 . . . 3
Psychology 206 . . . 3

37

Senior Year
Education 401, 402, 403, 475, 416 and 465 or 466 . . . 20
Health & Physical Education 150 . . . 2
Music (Applied) . . . 8
Music 204, 305 or 306 . . . 3
Music 455 (one-half recital) . . . 0
Social Science Elective . . . 3
Special Education 300 . . . 3

39

TOTAL SEMESTER HOURS . . . 147

*NOTE: 2 hours of HPE 100 (marching band) may substitute for 2 hours of Ensemble. Marching band is offered Fall Quarter only.

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.

General Science-Biology Curriculum

Freshman Year	Semester Hours
Biological Sciences 120, 121, 122, 123	8
Chemistry 100, 101, 103	5
English 101, 102, 201	9
Health and Physical Education Activities	2
Mathematics 111, 112	6
Speech 110	3
	33
Sophomore Year	
Biological Sciences 210	3
Chemistry 102, 104	3
Education 125	1
English 202	3
History 201, 202	6
Political Science 201	3
Psychology 204	3
Biological Sciences 124, 125	4
Geology 111, 121, 112, 122	8
	34
Junior Year	
Education 310, 352, 380	9
Health and Physical Education 150	2
Life Sciences 300	3
Biological Sciences 205	3
Physics 209, 261	4
Biological Sciences 313, 315,	6
Bacteriology 214	4
Fine Arts	3
	34
Senior Year	
Education 401, 402, 403, 416, 475	17
Physics 210, 262	4
Social Studies Elective	3
Special Education 300	3
Psychology 206	3
	30
TOTAL SEMESTER HOURS	131

General Science-Chemistry Curriculum

Freshman Year	Semester Hours
Bacteriology 214	4
Chemistry 100, 101, 102, 103, 104	8
English 101, 102, 201	9
Health and Physical Education Activities	2
Mathematics 111, 112	6
Speech 110	3
	32
Sophomore Year	
Chemistry 250, 251, 252, 253, 254	8
Education 125	1
English 202	3
Fine Arts	3
Geology 111, 121	4
Mathematics 220	3
Political Science 201	3
Psychology 204, 206	6
Biological Sciences 120, 121	4
	35
Junior Year	
Chemistry 205, 301, 351, 353	11
Education 310, 352, 380	9
Health & Physical Education 150	2
History 201, 202	6
Geology 112, 122	4
Biological Sciences 122, 123	4
	36
Senior Year	
Education 401, 402, 403, 416, 475	17
Physics 209, 210, 261, 262	8
Social Studies Elective	3
Special Education 300	3
Elective	3
	34
TOTAL SEMESTER HOURS	137

General Science-Earth Science Curriculum

Freshman Year	Semester Hours
Biological Sciences 120, 121	4
English 101, 102, 201	9
Geology 111, 121	4
Health & Physical Education Activities	2
Health & Physical Education 150	2
Mathematics 111, 112	6
Speech 110	3
Fine Arts	3
	33
Sophomore Year	
Education 125	1
English 202	3
Physics 209, 261	4
Geology 112, 122, 201, 303	10
History 201, 202	6
Chemistry 100	2
Political Science 201	3
Psychology 204, 206	6
	35
Junior Year	
Education 310, 352, 380	9
Geology 200, 318	6
Geography 374, 375	6
Physics 207, 210, 262	7
Chemistry 101, 103, 102, 104	6
	34
Senior Year	
Education 401, 402, 403, 416, 475	17
Social Studies Elective	3
Special Education 300	3
Biological Sciences 122, 123, 124, 125	8
Geology 305	3
	34
TOTAL SEMESTER HOURS	136

General Science-Physics Curriculum

Freshman Year	Semester Hours
English 101, 102	6
Health & Physical Education Activities	2
Mathematics 111, 112, 230	9
Physics 207	3

Speech 110 3
Biological Sciences 120, 121 4
Geology 111, 121, 112, 123 8

35

Sophomore Year
Education 125 1
English 201, 202 6
Health & Physical Education Activities 2
History 201, 202 6
Mathematics 231 3
Physics 201, 261, 202, 262 8
Political Science 201 3
Psychology 204, 206 6

35

Junior Year
Education 310, 352, 380 9
Chemistry 100 2
Physics 304, 465, 205 9
Special Education 300 3
Fine Arts 3
Biological Sciences 122, 123 4
Social Studies Elective 3

33

Senior Year
Chemistry 101, 103, 102, 104 6
Education 401, 402, 403, 416, 475 17
Physics 416, 417, 418, 419 8
Bacteriology 210 3

34

TOTAL SEMESTER HOURS 137

Social Studies Education Curriculum

Freshman Year	Semester Hours
Biological Sciences 101	3
English 101, 102, 201	9
History 101, 102, 201	9
Mathematics 110, 125	6
Science Elective	3
Speech 110	3

33

Sophomore Year
Education 125 1
English 202 3
Fine Arts 3
Geography 203, 230 6
Health & Physical Education 150 2
Health & Physical Education Activities 2
History 202 3
Political Science 201 3
Psychology 206 3
Sociology 201 3
Biological Sciences 102 3

32

Junior Year
Economics 100 or 200, 215 6
Education 310, 380, 353 9
Electives (minor) 3
Geography Elective 3
Political Science 310, 320, or 330 3
Psychology 204 3
Physical Science Elective 3
Special Education 300 3

33

Senior Year
Education 401, 402, 403, 416, 475 17
Electives (minor) 6
History 342 or Sociology 312 3
History 460 3
History 344 or Political Science 302 3
Sociology Elective 3

35

TOTAL SEMESTER HOURS 133

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

32

Sophomore Year
Biological Sciences 101, 102 6
Education 125 1
English 202 3
Fine Arts 3
Mathematics 125 3
Physical Science 3
Political Science 201 3
Psychology 204 3
Spanish 202, 301, 302 9

34

Junior Year
Education 310, 351, 380 9
Electives(minor) 3
Health and Physical Education 150 2
Psychology 206 3
Social Studies Elective 3
Spanish 380, 381 6
Spanish Upper Division Electives 6
Science Elective 3

35

Senior Year
Education 401, 402, 403, 416, 475 17
Electives(minor) 6
Spanish 450 3
Spanish Upper Division Elective 3
Special Education 300 3

32

TOTAL SEMESTER HOURS 133

*As the scheduling of upper-division Spanish courses is determined by changing enrollment patterns, students who plan to complete their degree within the shortest time possible may have to take one or more Spanish courses through the Inter-Institutional Cooperative Program at Grambling State University.

Speech Education Curriculum

Freshman Year	Semester Hours
Biological Sciences 101	3
Elective (minor)	3
English 101, 102, 201	9
Health & Physical Education Activities	2
Health & Physical Education 150	2

Mathematics 110, 125 6
Speech 110, 201 6
Political Science 201 3

34

Sophomore Year
Biological Sciences 102 3
Education 125 1
Electives (minor) 6
English 202 3
History 201, 202 6
Physical Science Elective 3
Speech 200, 211 6
Speech Elective 3

31

Junior Year
Education 310, 354, 380 9
Fine Arts Elective 3
Psychology 204, 206 6
Science Elective 3
Speech 315, 340, 307, 407, 440 15

36

Senior Year
Education 401, 402, 403, 416, 475 17
Electives (minor) 6
Social Studies Elective 3
Special Education 300 3
Speech Elective 3

32

TOTAL SEMESTER HOURS 133

Speech, Language, and Hearing Therapy Curriculum

Freshman Year — Semester Hours
English 101, 102, 201 or 202 9
Health & Physical Education Activities 2
Mathematics 110 3
Speech 110, 202, 210, 222, 301, and 302 16
Biological Sciences 101, 102 6

36

Sophomore Year
Education 125 1
History 201, 202 6
Physical Science Elective 3
Political Science 201 3
Psychology 204, 205 6
Speech 411, 413, 418, 470 12
Biological Sciences 224 3
Mathematics 114 3

37

Junior Year
Education 310, 323, 324 9
English 332 3
Psychology 206 3
Social Studies Elective 3
Speech 312, 443, 465 9
Fine Arts 3

30

Senior Year
Counseling 400 3
Education 355, 401, 416, 475 15
Health & Physical Education 150 2
Psychology 414 3
Special Education 300, 495 6
Speech 412A, 412B 4

33

TOTAL SEMESTER HOURS 136

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

Barry A. Benedict, Dean
James D. Nelson, Associate Dean, Academic Affairs
Paul N. Hale, Jr., Head, Department of Biomedical Engineering
Ron Thompson, Interim Head, Department of Chemical Engineering
Barry L. Kurtz, Head, Department of Computer Science
Leslie K. Guice, Head, Department of Civil Engineering
Louis E. Roemer, Head, Department of Electrical Engineering
E. Eugene Callens, Interim Head, Department of Mechanical and Industrial Engineering
Leona Ford, Director, Minority Engineering and Cooperative Education Programs

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 as follows: 1921-BS in General Engineering; 1927-BS in Mechanical-Electrical and BS in Civil Engineering; 1938-BS in Mechanical and separate BS in Electrical Engineering; 1940-BS in Chemical Engineering; 1948-BS in Petroleum Engineering; 1957-BS in Industrial Engineering; 1972-BS in Biomedical Engineering; and 1986-BS in Computer Engineering.

Other bachelors degrees developed as follows: 1953-Geology; 1968-Construction Engineering Technology; 1968-Computer Science; and 1972-Electrical Engineering Technology.

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 1973 the Ph. D. in Biomedical 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 the College of Engineering 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 both four-year engineering technology programs are accredited by the Technology Accreditation Commission of ABET. The Computer Science program is accredited by the Computer Science Accreditation Commission (CSAC) of the Computing Sciences Accreditation Board (CSAB), a specialized accrediting body recognized by the Council on Postsecondary Accreditation (COPA) and the U. S. Department of Education.

Undergraduate Degrees

Bachelor of Science degrees are offered in: Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Science, Construction Engineering Technology, Electrical Engineering, Electrical Engineering Technology, Geology, Industrial Engineering, and Mechanical 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:

English, 4 units; Algebra, 2; Plane Geometry, 1; Trigonometry, 1; Chemistry, 1; and Physics, 1.

Dual Bachelor of Science Degrees 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

Students who meet the University admissions criteria will be admitted to the College of Engineering.

International Students

International students will be subject to the same admission requirements as the other students. However, no baccalaureate program in the College of Engineering will permit its enrollment of international students to become larger than 15 percent of the program's total enrollment in the previous fall quarter. When international applicants exceed this limit, they will be selected for admission competitively on the basis of scholastic achievement.

Transfer Students

Candidates for admission to the College of Engineering who have studied at another institution of higher education must submit an official record of that study to Louisiana Tech University. This record will be evaluated by the department conducting the program in which the candidate wishes to major. The evaluation will determine which curricular requirements of the intended program of study at Louisiana Tech have been satisfied by the student's prior study. Students must have an overall grade point average

of at least 2.0 out of 4.0 in all courses for which transfer credit is allowed.

Scholastic Requirements

Students in the College of Engineering are subject to the scholastic standards of the University regarding probation, suspension, and readmission. Department heads may approve workload restrictions intended to restore the quality of the student's work to the standards required by the College of Engineering.

Students on scholastic probation and those returning from a period of suspension are limited to a maximum of 9 semester hours per quarter.

Electives

All electives must be approved by the appropriate department head.

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.

Correspondence Courses

Students in the College of Engineering are permitted to include no more than six semester credit 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 Associate Dean of the College of Engineering. Approval will be granted only for courses in humanities or social sciences. (All English courses are excluded.)

Graduation Requirements

All requirements listed in the General Information section of this Bulletin apply. In addition, a student majoring in a program in the College of Engineering must have at least a 2.0 grade point average in courses bearing the specific rubric of the major program (e.g., computer science, civil engineering, etc.) when computed on all attempts for which a final grade was received (excluding 'W plus' grades). In order to graduate from a baccalaureate program in the College of Engineering, a student must complete 27 of the last 36 hours in the curriculum while enrolled in the College of Engineering.

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; Biomedical Engineering 200; Electrical Engineering 386; Engineering 300 and 431; Geology 200, 201; Industrial Engineering 201 and 301; Mechanical Engineering 200; or any of the courses in the student's curriculum listed below:

Forestry: Civil Engineering 304, 456; Computer Science 102; Engineering Mechanics 206, 207; Industrial Engineering 409, 425.

Architecture: Civil Technology 372, 471, 473; Electrical Engineering 386; Engineering Mechanics 206, 207; Mechanical Engineering 326.

Physics: Engineering 102, 151, 162, 401; Engineering Mechanics 201, 203; Mechanical Engineering 477; Electrical Engineering 222, 226, 331, 332, 339.

Business Administration: Industrial Engineering 409.

Non-College of Engineering majors are limited to two College of Engineering courses per quarter.

Ethical Standards

Students in the College of Engineering are preparing to enter a profession which demands high ethical standards of its members. Honesty and high ethical standards are demanded of these students and all others taking courses conducted in the College of Engineering. It is the student's right and responsibility to discourage and report academic misconduct. The failure to do so is a breach of ethical standards.

Academic misconduct is a serious breach of ethics in academic activities, such as examinations, reports, and homework. It may occur in any of the following forms:

1. Giving or receiving unauthorized aid;
2. Stealing or plagiarizing the substance, work, or ideas of others;
3. Lying, using evasive statements, or concealing the truth behind technicalities.

Student-written computer programs and data are not to be shared with other students without the specific authorization of the responsible faculty. Students are responsible for protecting their disks from unauthorized access.

The determination of academic misconduct will be made in accordance with the University's "Academic Misconduct" section of this Bulletin.

Repeated occurrences of academic misconduct are specifically contrary to the standards of personal integrity required by the professions connected with the programs in the College of Engineering. Therefore, a stronger penalty may be awarded for repeated commissions of academic misconduct, including dismissal from the College of Engineering.

Undergraduate Research Opportunities Program

The Undergraduate Research Opportunities Program (UROP) provides academically qualified undergraduate students an opportunity to gain experience on campus by working part-time as a member of a research team including faculty and graduate students. The UROP program provides compensation that is competitive with most local employment and entails the major advantage of providing on-campus stimulating work experience to enrich the student's total educational experience.

The qualifications required for participating in the UROP program include:

1. Students must be enrolled in a degree program in the College of Engineering and must be in good academic standing.
2. Students must have an overall grade point average of 2.5 or better.

The selection of students for the UROP program will be made by the faculty responsible for the various research projects offering the employment.

Applicants will automatically be considered for suitable

employment on research projects throughout the College regardless of the department in which they are enrolled.

The Cooperative Education Program

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 Education Program provides one of the best methods for integrating technical theory and practical industrial experience in a five-year educational program.

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 education and financial possibilities. The Cooperative Education Program will allow the student to have approximately two years 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 Education Program does not obligate the graduate to accept employment with the cooperating company, nor does it obligate the company to offer permanent employment to the graduate.

Each student participating in the Cooperative Education Program is required to register at Louisiana Tech during each work period.

Students from any department within the College of Engineering will be considered for participation in the Cooperative Education Program 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 Education Program, College of Engineering, Louisiana Tech University, Ruston, LA 71272.

Student Organizations

The following national organizations have student chapters on campus: Biomedical Engineering Society, 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, Associated General Contractors of America, Institute of Transportation Engineers, Associations of Electrical Engineering Technologists, Society of Automotive Engineers, North American Society for Trenchless Technology, National Society of Black Engineers, and Society of Women Engineers.

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

Engineering Scholarships

The scholarships listed under this section of the catalog are administered by the College of Engineering and its individual departments. Scholarships derived from annual gifts are subject to cancellation or modification by the sponsoring agency.

Butros Aukar Memorial Scholarship

A $300 scholarship is provided for an outstanding student majoring in mechanical engineering or industrial engineering.

Associated General Contractors of America Scholarships

A $1,000 scholarship is made available by the Louisiana Highway, Heavy, Municipal, and Utilities Branch of AGC to a student majoring in construction engineering technology. Students in construction engineering technology may also apply for scholarships through the AGC Shreveport Chapter and the National AGC, the Associated Builders and Contractors, Inc., and the Software Shops Systems.

David Michael Baker-Puffer Sweiven, Inc. Memorial Scholarships

One or more scholarships at $1000 each are awarded to outstanding students majoring in Chemical Engineering at any level.

Ben T. Bogard Scholarship

A scholarship of approximately $1,000 is usually awarded each fall to an outstanding engineering student who has completed at least 6 quarters and 92 semester credit hours at Louisiana Tech, but has at least 3 quarters remaining before graduation. The award is based on scholarship, character, leadership, and need.

Frank Bogard Scholarship

A scholarship of approximately $500 is awarded to an engineering student having completed at least 3 quarters and 60 semester credit hours at Louisiana Tech, but not more than 91 semester credit hours at the beginning of the fall quarter. The award is based on scholarship, character, leadership, and need.

Robert V. Byrd Scholarship

A scholarship of approximately $500 is awarded each year to an engineering student maintaining a grade point average of 3.0 or better.

Ronald E. Cannon Endowed Scholarship

Scholarships awarded based on academic excellence to students pursuing a degree in an engineering discipline applicable to the natural gas and gas processing industry.

Chemical Engineering Freshmen Academic Scholarships

Scholarships of $600 are awarded to incoming chemical engineering freshmen for the first academic year. These awards are based on ACT scores, placement exams, and high school records. The student must establish and

maintain a 3.0 grade point average and remain a full-time student in chemical engineering. Students may be continued on Chemical Engineering Scholarships after the freshman year.

Chemical Engineering Scholarships
Scholarships are available to sophomore, junior, and senior students. Recipients are chosen on the basis of need, scholarship, and leadership. Participating companies include Dow Chemical, Exxon, PPG Industries, Union Carbide, UOP, Chevron, Ethyl, Monsanto, Copolymers, and Fluor Daniels. Scholarships are usually $600 per year.

Scott Jason Chevalier Scholarship
A $1500 scholarship is awarded each year to an engineering student maintaining a grade point average of 3.0 or better.

Loyd Ray Click Memorial Scholarship
The Shreveport Chapter of the Construction Specifications Institute awards an annual $500 scholarship to a sophomore, junior, or senior student majoring in Architecture, Interior Design, Landscaping, Civil, Mechanical, or Electrical Engineering, or Construction Engineering Technology. The award is based upon academic excellence, financial need, and character. The Selection Board is composed of an Architectural Department faculty member, an Engineering Department faculty member, and a member of the Shreveport CSI Chapter.

Desk and Derrick Club Scholarship
An annual scholarship is provided for a student majoring in geosciences.

Dow Chemical Outstanding Junior Chemical Engineering Award
A $1,000 award is given to the top junior in chemical engineering. The recipient is chosen on the basis of scholarship and leadership. Selection is made by the Student Chapter AIChE officers and chemical engineering faculty.

Engineering Alumni Scholarships
Derived from contributions by engineering alumni and their employers, scholarships are awarded each fall to incoming freshmen students in the College of Engineering. These awards are based on ACT and National Merit scores and high school records. The student must maintain a grade point average of 3.0 and remain in good standing in the College of Engineering.

Oliver Woodrow Fisher Memorial Scholarships
Scholarships in the amount of $1,000 each are awarded annually to students majoring in construction engineering technology, electrical engineering, and mechanical engineering.

Mendal Heller Memorial Scholarship
A $400 scholarship is provided by the Ark-La-Tex Section of ASME for an outstanding student majoring in mechanical engineering.

David E. Hogan Endowed Scholarship
Scholarships awarded based on academic excellence to students pursuing a degree in an engineering discipline and demonstration of financial need.

Instrument Society of America Scholarship
The Monroe Chapter of ISA provides scholarships for juniors and seniors pursuing a degree in an engineering program.

T. L. James and Company Scholarships
A $1,250 scholarship is awarded each fall to a particularly well-rounded civil engineering or construction engineering technology freshman. The award is continued through the senior year if the student remains in good academic standing and remains in one of the specific disciplines of study.

Kaiser Aluminum Company Minority Scholarships
Approximately $6,000 in scholarships are awarded each year for minority and women students majoring in chemical engineering and mechanical engineering. The number and amount of scholarships are determined by the faculty in the individual departments. Awards are renewable and are based on need and academic standing.

Eastman Minority Academic Awards
Scholarships in the amount of 100 percent of tuition and fees are awarded to sophomore, junior, and senior minority engineering students. Preference is given to those who rank in the upper 25 percent of their class. The award may be continued through the senior year.

Eastman Scholars Award
Scholarships based on academic excellence includes $4000 awarded to a junior in chemical engineering for senior year expenses, together with a summer internship at Eastman. The students must be a U. S. citizen and rank in the top 10% of their class.

Thomas E. Landrum Memorial Scholarship
One scholarship is given to the outstanding senior in Biomedical Engineering.

McDermott Incorporated Scholarships
Two $1,000 scholarships are provided for a junior and a senior majoring in civil engineering.

R. A. McFarland Memorial Scholarship
A scholarship is awarded as availability of funds permit 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/her class among civil engineering students.

J. L. Orr Scholarship
Investment proceeds from funds given by Edward and Virgil Orr in memory of their father are used to support superior students at the graduate or undergraduate levels in chemical engineering. Awards are based on merit and need.

Pipes Foundation Scholarship
Scholarships awarded to students pursuing a degree in an engineering discipline who maintain a 3.0 or better grade point average.

Richwood-Manville Scholarships in Chemical Engineering
This scholarship is awarded to Juniors or Seniors in chemical engineering. Requirements are superior academic record and interest in the pulp and paper industry, $1000 award and consideration for summer employment between Junior and Senior year.

Johnny Rolland Memorial Scholarship
The United Cerebral Palsy of Louisiana provides $1,000 to be awarded to one or more junior level or above biomedical engineering students in need of assistance.

Roy T. Sessums Memorial Scholarships
Four scholarships in the amount of $1,000 are awarded each year on a stated rotation to two freshman and two graduate students majoring in civil, electrical, or mechanical engineering. Scholarships are awarded on the basis of scholarship, character, and leadership. The awards for underclassmen may be continued if the students remain enrolled in their chosen discipline of study and maintain a grade point average of 3.0 or better.

Harrell R. and Lenore S. Smith Scholarship
A $1,000 scholarship is awarded each fall to a student chosen by the College of Engineering Awards and Scholarships Committee.

Society of Petroleum Engineers Scholarship
Three scholarships are awarded by the Lou-Ark Section of SPE to a sophomore, junior, and senior majoring in petroleum engineering.

Square D Company Scholarship
Three $500 scholarships are awarded annually to deserving students majoring in electrical engineering technology.

Henry E. & Margaret A. Stamm Scholarship
Scholarships awarded based on academic excellence and demonstration of financial need.

Harry Talbot Scholarship
A scholarship of approximately $1,000 is awarded to an engineering student with a grade point average of 3.0 or better and who is a U.S. citizen.

Clotilde and Hall Terry Scholarships
Two scholarships are awarded to freshmen majoring in computer science. Recipients are chosen by the computer science faculty. The awards may be continued up to four years at the discretion of the computer science faculty.

Jack Thigpen Scholarships
Approximately $2,000 in scholarships are awarded each year to outstanding students in mechanical engineering. The number and amount of awards are determined by the mechanical engineering faculty.

Tri-State Elevator Scholarship
A scholarship of approximately $500 is awarded to a student majoring in any program of study offered by the College of Engineering.

Bruce Tucker Memorial Scholarship
A $1,000 scholarship is awarded annually to a student majoring in construction engineering technology.

Roy Wayne Vining-Dow Chemical Company Memorial Scholarship
Two or more $1000 scholarships are awarded to outstanding chemical engineering students at any level, subject to renewal.

Donald F. Waitt Memorial Scholarship
A $500 scholarship, sponsored by the Mechanical Contractors Association of Shreveport-Bossier, is available to an outstanding mechanical engineering student from Caddo or Bossier Parishes.

Whetstone Scholarships
A $1,000 and a $900 scholarship, sponsored by the R. Terral Whetstone family of Shreveport, are available to mechanical engineering students.

C. C. Whittelsey Scholarship
A scholarship is awarded as availability of funds permit to a student majoring in an engineering curriculum.

Thomas J. and Elizabeth B. Wilson Scholarship
A scholarship is awarded as availability of funds permit 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 $750 scholarship is awarded each year by the Louisiana Engineering Society Ladies Auxiliary--New Orleans to 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 professional development of 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 and Graduate Studies serving as chairman of the group.

The financial support of research projects is derived from two primary sources:

1. The operating budget of the Division of Engineering Research.

2. 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 Biomedical, Chemical, Civil, Electrical, Industrial (with an Operations Research option), and Mechanical. The Master of Science is offered in Computer Science.

The Doctor of Philosophy Degree in Biomedical Engineering and the multidisciplinary Doctor of Engineering Degree are offered.

For information about graduate studies, see details in the graduate portion of this Bulletin, or contact the Associate Dean for Academic Affairs, 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, and continuing education programs. 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 Education, Louisiana Tech University, Ruston, LA 71272.

Departmental Information

Engineering Freshmen

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 100, 101, 102, 103, 104	8
Engineering 100*, 102**	3***
English 101, 102	6
Mathematics 230, 231, 232	9
Biological Sciences 101 or 102	3
Humanities/Social Science Elective	3
	32

*Students who have decided on a major may substitute a departmental orientation course.

**Computer Science 109 may be substituted for Engineering 102.

***Computer Science majors will take Computer Science 100 (3 hours) and Computer Science 120 (3 hours) instead of Engineering 100, and 102.

Humanities/Social Science Electives

All engineering students are required to take one history class, one literature class, one fine art appreciation class, and two social science classes. The social science classes must be taken in the same subject area in order to indicate depth in that subject. Social science electives should be selected from economics, geography, political science, psychology, or sociology. Any of the above courses can be counted as the humanities/social science elective for the freshman year. The General Education Requirements of the University must be met.

Department of Biomedical Engineering

Biomedical engineering is formally defined as the application of engineering skills, principles, and tools to problems in biology and medicine. The undergraduate program at Louisiana Tech University combines the practical aspects of engineering with biology and medicine to produce an engineer capable of solving special kinds of problems. Biomedical engineers are alert and sensitive to the challenges of designing and using products for living systems and of studying these systems. The program provides medical and biological instruction in typical premedical courses (e.g., general biology, anatomy, physiology, organic chemistry) and engineering instruction in fundamental engineering courses. The biological training is integrated with the engineering training by means of a series of coordinated biomedical engineering courses taught at the sophomore, junior, and senior academic levels. In order to provide depth and focus in technical abilities, students specialize in one of the following traditional areas: chemical engineering, electrical engineering, or mechanical engineering. A separate track is available for pre-medical students.

An optional clinical engineering internship program has been developed with hospitals in the state and region. A biomedical engineering student may spend one quarter in a hospital system, experiencing a variety of medical and health care activities and producing a project report.

Biomedical engineers are working in many rewarding areas: for example, design and construction of artificial internal organs; design and application of the electronics and instrumentation associated with hospital operating rooms, intensive care units, and automated clinical laboratories; development and instrumentation of biomedical computer systems; the functional rehabilitation of disabled persons through appropriate application and development of technology; clinical engineering; aerospace medicine and life science; 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, rehabilitation engineering centers, national research foundations, governmental research institutions and agencies (e.g., NASA, FDA), chemical companies, pharmaceutical companies, hospital products companies, medical instrumentation and computer companies, orthopedic implant companies, and aerospace life science companies. Also, entrepreneurial activity in the health related industries is prospering. Innovative medical and health care products can be manufactured and marketed by resourceful biomedical engineers. In industry, Louisiana Tech Biomedical Engineering graduates are responsible for manufacturing, quality control, research and development, management, and marketing.

One special feature of the Biomedical Engineering Program is that, upon or before graduation, students may complete the basic requirements necessary for admission to medical school. The program provides a strong quantitative background for one who wishes to pursue a future medical career. Graduates of the program have also been very successful in medical school. 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 a Master of Science and/or the Doctor of Philosophy degree in Biomedical Engineering. Continued professional education in business, law, and the basic medical sciences is also possible.

The curriculum in Biomedical Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Biomedical Engineering Curriculum

Freshman Year	Semester Hours
Freshman Engineering Curriculum*	32
Engineering 151	2
	34
Sophomore Year	
Biomedical Engineering 201, 205, 320	7
Electrical Engineering 221, 222	6
Engineering Mechanics 201	2
Mathematics 233, 350	6
Physics 201, 202	6
Biological Sciences 124, 125*	4
English 201 or 202	3
	34
Junior Year	
Biomedical Engineering 301, 325, 420	10
Economics 215	3
Electrical Engineering 321	3
Engineering Mechanics 203, 301	5
Engineering 425	1
English 303	3
History Elective	3
Biological Sciences 320, 321	4
Technical Elective	3
	35
Senior Year	
Biomedical Engineering 400, 401, 402, 403, 404, 425	14
Industrial Engineering 400	3
Humanities/Social Science Electives	6
Speech Elective**	3
Technical Elective	9
	35
TOTAL SEMESTER HOURS	138

*Biological Sciences 120 and 121 are prerequisites for Biomedical Engineering 201 and Biological Sciences 124 and should be taken during the Freshman year instead of Biological Sciences 101 or 102.

**Speech 377, English 463, or equivalent.

All electives must be approved by the Head of the Department. Humanities or social science electives are to be selected as follows: one "arts" appreciation course, one history course, and a two course sequence chosen from psychology, political science, sociology or geography. Technical electives are to be selected from the Departments of Electrical Engineering, Mechanical Engineering, or Chemical Engineering as follows:

Electrical Engineering: 229, 329, 331, 332, 339 and 442.

Mechanical Engineering: Engineering Mechanics 211, 311, Mechanical Engineering 214, 291, 361, 462.

Chemical Engineering: 202, 304, 313, 332, 353, 413.

Students planning to enter medical school may take the following sequence of courses as technical electives: Chemistry 250, 251, 252, 253, 254, Chemical Engineering 202, 304, Physics 261, 262.

Other choices for technical electives may be considered but must be approved by the Department Head.

The Department of Biomedical Engineering normally requires a "C" or better in any course which serves as a prerequisite for another course.

Department of Chemical Engineering

The primary task of Chemical Engineers is the mastery of the industrial processes which chemically transform various natural resources into more useful and valuable products. These products range from paper and gasoline to medicines and computer microchips. The Chemical Engineer is constantly concerned with improving these processes to best conserve resources (including capital) while preserving and protecting the environment.

The education of the chemical engineer covers advanced chemistry, physics, mathematics, general engineering, computer applications, material balances, energy balances, chemical equilibria, thermodynamics, kinetics and reactor design, unit operations and transport processes, and process control, with laboratories emphasizing these areas along with oral and written communication skills.

In order to meet current career interests and opportunities, elective courses are offered in nuclear applications and safety, industrial waste treatment, specialized computer techniques (including artificial intelligence), polymer engineering, pulp and paper processes, biochemical engineering, and fire and process safety. The curriculum in chemical engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

An Environmental Engineering Option is available to senior level Chemical Engineering majors. This option allows students to apply Chemical Engineering principles to the treatment of air pollution, waster water, and solid and hazardous waste. Choose the following courses as Technical Electives: Two from Chemical Engineering 411, 445, and 456 plus Civil Engineering 417.

The graduate in chemical engineering is particularly versatile. Industrial work may involve the production, operations, customer service, sales, or research departments of industries, producing semiconductors, microchips, metals, paper, petroleum, petrochemicals, plastics, forest products, pharmaceuticals, or foods or the technical service or process improvement sections of such industries. Meaningful careers are also available with governmental agencies or private foundations associated with space, energy, and the environment. Graduate education in medical school, dental school, business school, law school, and chemical engineering are viable alternatives. At the undergraduate level, the purpose of the Department is to provide a strong basic education such that the graduate will be prepared for all these options.

Chemical Engineering Curriculum

Freshman Year	Semester Hours
Freshman Engineering Curriculum	32
(English 201 or 202 is the Humanities/Social Science Elective.)	
Sophomore Year	
Chemical Engineering 202, 203, 210, 254, 331	12
Chemistry 250, 251, 252, 253	7
English 303	3

Mathematics 230, 350	6
Physics 201, 202	6
	34
Junior Year	
Chemical Engineering 304, 313, 332 353, 407, 413, 430	18
Chemistry 311, 312, 313 or 314	7
Economics 215	3
Engineering Mechanics 201, 301	6
Speech 377	3
	35
Senior Year	
Chemical Engineering 402, 424, 432, 434, 451	10
Electrical Engineering 221	3
Technical Electives	9
Humanities/Social Sciences Electives	12
	34
TOTAL SEMESTER HOURS	134

All electives must be approved by the Head of the Department of Chemical Engineering. Humanities/Social Science electives must be selected as follows: one course must be a history course; one must be either Art 390, HPE 280, Music 290, or Speech 290, and two must be Social Sciences chosen from psychology or sociology. This requirement cannot be satisfied solely by entry level courses. 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. Six of the nine elective hours must be selected from non-required senior level courses offered by the Department of Chemical Engineering.

Department of Civil Engineering

Civil Engineers are in the forefront providing constructive counsel on matters vital to mankind. Civil engineers are primarily responsible for planning, designing, and constructing all the world's constructed facilities. Most people can only talk about solving traffic congestion, environmental pollution, droughts, and floods. Civil engineers help to eliminate or greatly reduce the destructive effects of these events.

Accredited by the Engineering Accreditation Commission of 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 analysis and 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 welfare of mankind and the environment. Well-equipped laboratories enhance the classroom lectures: Computer-Aided Design, Environmental Engineering, Hydraulics, Materials Testing, Soil Mechanics, Structural Testing, Stress Analysis, Surveying, and Transportation.

The student will gain some competence in all of the following areas with emphasis on at least one: structural design, environmental engineering, hydraulics, hydrology, surveying, transportation, soil mechanics, highways, and materials.

Civil Engineering Curriculum

Freshman Year	Semester Hours
Chemistry 100, 101, 102, 103, 104	8
Engineering 100	1
English 101, 102	6
Mathematics 230, 231, 232	9
Biological Sciences 101 or 102	3
Humanities/Social Sciences Elective	3
Geology 217	2
Civil Engineering Elective	1
	33
Sophomore Year	
Civil Engineering 254, 291, 300	8
Economics 215	3
Electrical Engineering 221	3
Engineering Mechanics 203, 211, 311	9
Mathematics 233, 350	6
Physics 201, 202	6
Civil Engineering Elective	1
	36
Junior Year	
Civil Engineering 302, 310, 324, 325, 332, 346, 391, 443	21
Engineering 401	2
Engineering Mechanics 321	3
English 303	3
Mechanical Engineering 331	3
Speech Communication Elective	3
Civil Engineering Elective	1
	36
Senior Year	
Art/Music/Theatre/Dance Appreciation Elective	3
Civil Engineering 314, 424, 439, 444, 465, 492, 493, 494	15
Humanities/Social Science Electives	9
Technical Electives	6
Civil Engineering Elective	1
	34
TOTAL SEMESTER HOURS	139

All electives must be approved by the Head of the Department of Civil Engineering. Technical electives must be selected in consultation with a faculty advisor to provide a minimum of 2.5 semester hours of engineering design content. Humanities/social science electives include 3 hours of history, 3 hours of literature, and 6 hours from geography, political science, psychology, sociology, or economics with 3 hours at the advanced level.

All freshman and sophomore year courses should 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 Technology is offered by the Department of Civil

Engineering. The program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology. It is in many ways similar to civil engineering but has the following major differences:

a. Emphasis is on practical application of engineering science rather than upon the comprehensive understanding of the scientific theories.

b. Considerable time is devoted to management and business administration courses.

c. Much less time is devoted to mathematics and the sciences.

Although not trained to become registered professional engineers, graduates of this program are qualified to fill many professional positions in governmental agencies, industrial concerns, manufacturing companies of construction supplies and equipment, and in construction firms. These jobs may involve contract supervision, intermediate managerial responsibilities, inspection or sales, as well as the supervised design of construction projects. The undergraduate business and management training should help in moving up the executive ladder to success.

Construction Engineering Technology Curriculum

Freshman Year	Semester Hours
Accounting 201	3
Civil Engineering 100	1
Chemistry 130	3
English 101, 102	6
Engineering 102, 151	4
Management 201	3
Mathematics 111, 112, 220	9
Biological Sciences Elective	3
	32
Sophomore Year	
Civil Engineering 254	3
Economics 215	3
Engineering Mechanics 206, 207	6
English 303	3
Humanities/Social Science Electives	6
Physics 209, 210, 261, 262	8
Speech Communication Elective	3
	32
Junior Year	
Business Law 255	3
Civil Engineering 438, 357	5
Civil Technology 210, 345, 373, 475	11
Construction Business/Management Elective	3
Engineering 401	2
Humanities/Social Science Elective	3
Mechanical Engineering 326	3
Statistics 200	3
	33
Senior Year	
Civil Engineering 436, 437, 439	8
Civil Technology 372, 424, 471, 473, 476	11
Electrical Engineering 386	3
Humanities/Social Science Electives	6
Technical Electives	6
	34
TOTAL SEMESTER HOURS	131

All electives must be approved by the Head of the Department of Civil Engineering and the Coordinator of Construction Engineering Technology.

Department of Computer Science

Computer science at Louisiana Tech is concerned with algorithm design, programming techniques, and state-of-the-art concepts in computer systems. The curriculum is designed to meet three objectives: (1) a general education in mathematics, science, and the humanities; (2) an in-depth study of computer systems, including the practical and theoretical aspects of the hardware (equipment) and software (procedures) of these systems; (3) an opportunity to prepare for graduate studies or a challenging position in industry in an ever-changing technical discipline.

Computer science at Louisiana Tech places emphasis on the basic concepts of computer 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.

Requirements for a Minor in Computer Science

Students in other departments who wish to minor in Computer Science are required to take 21 or 22 hours including: (software design) Computer Science 100, 120, 220, 230, 325, 330, 402
(systems) Computer Science 120, 220, 251, 265, 269,

330, 345, 462 (theory) Computer Science 100, 120, 210, 220, 310, 325, 400-level elective.

Computer Science Curriculum

Freshman Year	Semester Hours
Freshman Engineering Curriculum	33*
Sophomore Year	
Computer Science 210, 220, 230, 240	12
Computer Science 251 or Electrical Engineering 241	3
Computer Science 265 or Electrical Engineering 231	3
Computer Science 269 or Electrical Engineering 239	1
Economics 215	3
Humanities/Social Science Elective	3
Physics 201, 202, 261, 262	8
	33
Junior Year	
Computer Science 310, 325, 330, 345	12
Mathematics 308 or 313	3
English 303	3
Support Area Electives	3
Speech Communications Elective	3
Humanities/Social Science Elective	3
Literature	3
Arts Elective	3
	33
Senior Year	
Computer Science 462, 402	6
Computer Science Electives	12
Support Area Electives	12

Industrial Engineering 400 or Statistics 405 3

33

TOTAL SEMESTER HOURS 132

All electives must be approved by the Department Head. Humanities/Social Science electives must include one history course. Support area electives must include a concentration in at most two areas, one of which must be science, mathematics, engineering, advanced business, or computer science.

*Computer Science majors will substitute:
Chemistry 100, 101, 102 and Computer Science 100, 120

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; and 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 (EAC-ABET for Electrical Engineering, TAC-ABET for Electrical Engineering Technology). 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, a graduate has maintained a relatively good scholastic record, the graduate 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 and the Doctor of Engineering. 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 plan of study 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 adviser. A non-thesis option is available with additional course work. Those who attain an 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	32
Sophomore Year	
Economics 215	3
Electrical Engineering 221, 222, 229, 231 (or CS 265), 239 (or CS 269)	11
Engineering Mechanics 211	3
English 201 or 202	3
Mathematics 233, 350, Math Elective	9
Physics 201, 202	6
	35
Junior Year	
Electrical Engineering 241 (or CS 251), 311, 321, 331, 334 339, 381, 389, 411	23
Engineering Mechanics 203, 301	5
English 303	3
Electrical Engineering Technical Elective	2
Speech 377 or English 463	3
	36
Senior Year	
Art Elective	3
Electrical Engineering 406, 407, 481, 461, 469, 471, 479	15
Engineering 401	2
Humanities/Social Science Electives	6
Mechanical Engineering 331	3
Technical Electives	6
	35
TOTAL SEMESTER HOURS	138

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, 407, 410, 411, 445.

Humanities or social science electives must be two courses selected from the same area offered in the Departments of Social Sciences and Behavioral Sciences.

Arts elective to be selected from approved list.

Technical electives: courses are to be selected from an approved list of electrical engineering courses. 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.

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 emphasizes the latest in solid state and integrated circuit and microprocessor technology. The graduate will also have received training in technical writing, public speaking, documentation, and general industrial practices which result 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 Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

Electrical Engineering Technology Curriculum

Freshman Year	Semester Hours
Art/Music Elective	3
Computer Science 100	3
Electro-Technology 100, 170, 171, 180, 181	9
English 101, 102	6
History Elective	3
Mathematics 111, 112	6
	30
Sophomore Year	
Electro-Technology 260, 261, 270, 271, 272, 273, 280, 284, 285	19
Mathematics 220, 221	5
Physics 209, 210, 261, 262	8
	32
Junior Year	
Chemistry 100, 101, 103	5
Engineering Mechanics 206	3
Electro-Technology 360, 361, 370, 371, 390	11
English 303	3
Literature Elective	3
Mathematics 225	2
Mechanical Technology 215	3
Humanities/Social Science Elective	3
	33
Senior Year	
Biological Sciences Elective	3
Electro-Technology 460, 461, 465, 470, 471, 472	11
Electro-Technology Elective	4
Free Elective	3
Humanities/Social Science Electives	6
Speech 377	3
	30
TOTAL SEMESTER HOURS	125

All electives must be approved by the Head of the Department of Electrical Engineering.

Department of Mechanical and Industrial Engineering

Separate programs within the Department of Mechanical and Industrial Engineering lead to Bachelor of Science degrees in either of these disciplines.

Technical Enrichment Program: Completion of four or more Mechanical Engineering/Industrial Engineering 499 courses will satisfy the enrichment program requirements; an indication of series completion will be made on the transcript. Contact the department for more information on the Technical Enrichment Series.

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 provide an opportunity to develop the ability to use these fundamentals in design and in the analysis and solution of technical problems. This curriculum is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Mechanical engineering is one of the most diversified of the engineering fields. Because of this diversification, many types of careers are open to the mechanical engineer, including those in research, development, design, production, operations, maintenance, marketing, sales and administration. Most companies who come to Louisiana Tech to interview engineers typically 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 of graduate study in mechanical engineering. The student interested in the graduate program should talk to his/her advisor about the graduate school option which starts in the junior year.

Mechanical Engineering Curriculum

Freshman Year	Semester Hours
Freshman Engineering Curriculum	32
Engineering 151	2
	34
Sophomore Year	
Electrical Engineering 221	3
Engineering 401	2
Engineering Mechanics 203, 211	6
Humanities/Social Science Elective	3
Mathematics 233, 350	6
Mechanical Engineering 202, 214, 215, 221, 291	9
Physics 201, 202	6
	35
Junior Year	
Engineering 425	1
Engineering Mechanics 311	3
English 303, 463	6
Mechanical Engineering 300, 323, 331, 333, 343, 361, 371, 381	22
Humanities/Social Science Elective	3
	35
Senior Year	
Mechanical Engineering 400, 451, 462, 463, 484, 485, 486, 492, 493	17
Humanities/Social Science Electives	9
Technical Electives	9
	35
TOTAL SEMESTER HOURS	139

All electives must be approved by the advisor and the Head of the Department of Mechanical and Industrial Engineering. The

humanities and social science program must include two courses in the same area, with one course at the 300 level or higher.

The technical electives program must include one of the following design technical electives: Mechanical Engineering 413, 432, 436, 455, 467, 469, 476, 478, or 488.

If a student receives a grade of D or F in any mathematics, physics, chemistry or engineering mechanics course that is a prerequisite for another required course in the curriculum, the course must be repeated before proceeding in the sequence.

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 manufacturing facility, hospital, government office, 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 using robots and automated assembly systems, a better way to recover the cost of scrap from manufacturing processes using CAD/CAM systems, a better way to assure product quality and reliability via automated inspection and machine vision, 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 by 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 demand for its graduates in all sectors of the economy and the many professional accomplishments of the faculty. The program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Industrial Engineering Curriculum

Freshman Year	Semester Hours
Freshman Engineering Curriculum	32
Engineering 151	2
	34
Sophomore Year	
Economics 215	3
Electrical Engineering 226, 229	3
Engineering Mechanics 203, 211	6
Industrial Engineering 201, 301	6
Mathematics 233, Math Elective	6
Mechanical Engineering 211, 221	4
Physics 201, 202	6
	35
Junior Year	
Engineering 401	2
Engineering Mechanics 311	3
English 303	3
Industrial Engineering 400, 401, 402, 404, 406, 409, 425	21
Mathematics 350	3
Mechanical Engineering 331	3
	35
Senior Year	
Art Elective	3
Economics Elective	3
Engineering 425	1
English 463	3
Social Studies Elective	3
Industrial Engineering 408, 410, 411, 412, 424	10
Literature Elective	3
Technical Electives	9
	35
TOTAL SEMESTER HOURS	139

All electives must be approved by the Head of the Department of Mechanical and Industrial Engineering.

Department of Petroleum Engineering and Geosciences

Petroleum Engineering

The Petroleum Engineering Curriculum is designed to prepare graduates for useful employment or graduate study in the petroleum industry by providing instruction in topics of drilling, production, properties of reservoir rocks and fluid, reservoir analysis and exploitation, formation evaluation, and economics. By emphasizing the application of basic studies in mathematics, chemistry, physics, geology, engineering science and design, the four-year curriculum leading to the Bachelor of Science degree in Petroleum Engineering includes courses developing a proficiency of computer application, humanities and social sciences, communication, and engineering topics. Student creativity is developed throughout the curriculum by use of open-ended problems, development and use of design methodology, formulation of design problem statements, and culminates in the senior design experience, Petroleum Engineering 480.

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. Wherever practical in the course of study, trips are utilized to illustrate equipment and problems studied and to promote professionalism.

Although not a requirement, students are encouraged to find summer employment in the petroleum industry. The curriculum in petroleum engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Petroleum Engineering Curriculum

Freshman Year	Semester Hours
Freshman Engineering Curriculum.	32
	32
Sophomore Year	
Economics 215	3
Engineering Mechanics 211	3
Geology 111, 112, 121	7
Mathematics 233, 350	6
Petroleum Engineering 202, 305	7
Physics 201, 202	6
	32

Junior Year

Chemical Engineering 331, 332	6
Computer Elective	3
Engineering Mechanics 203, 311, 321	9
English 201 or 202, 303	6
Art 290, Music 290, or Speech 290	3
Mathematics Elective	3
Petroleum Engineering 311, 404	6
	36

Senior Year

Electrical Engineering 226	2
Engineering 425	1
Geology 315	3
Social Science Electives	6
Petroleum Engineering 405, 406, 410, 414, 415, 424, 425, 450, 480	21
Speech 377	3
	36
TOTAL SEMESTER HOURS	136

Electives must be approved by the Head of the Department of Petroleum Engineering and Geosciences and must include 6 sequential hours of social science. The mathematics elective should be linear algebra, probability and statistics, partial differential equations, numerical analysis, or advanced calculus.

Geosciences

Geosciences encompasses many scientific disciplines including astrogeology, geology, geophysics, geochemistry, hydrogeology, mineralogy, oceanography, paleontology, sedimentology, stratigraphy, and structural geology. These fields touch every facet of modern civilization from the discovery of mineral wealth, the identification and remediation of environmental problems, to the more exotic exploration of the moon and planets.

At Louisiana Tech, the specialization is in the education of geologists for the environmental and petroleum industries. Employment opportunities are also available with the U.S. Geological Survey, the Environmental Protection Agency, and other branches of local, state, and federal government.

The Geology curriculum, leading to the Bachelor of Science in geology, 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.

A minor in Geology consists of Geology 111, 112, 121, 122, and thirteen additional hours of which at least nine must be at the 300 level or above.

Geology Curriculum

Freshman Year	Semester Hours
Biological Sciences 101 or 102	3
Chemistry 100, 101, 102, 103, 104	8
Engineering 100 or University Seminar	1
English 101 and 102 and 201 or 202	9
Geology 111, 112, 121, 122	8
Mathematics 111, 112	6
	35

Sophomore Year

Economics 215	3
Engineering 151	2
Geology 209, 210, 211, 214	12
History 101 or 102 or 201 or 202	3
Mathematics 230, 231	6
Physics 209, 210, 261, 262	8
	34

Junior Year

Art 290, Music 290, or Speech 290	3
English 303	3
Geology 302, 303, 305, 315, 316, 318	17
Geology 320 (Summer Field Camp)	6
Life Sciences 420	3
	32

Senior Year

Geology 421, 460	6
Speech 377 or English 463	3
Social Science Electives	6
Technical Electives	14
	29
TOTAL SEMESTER HOURS	130

Electives must be approved by the Head of the Department of Petroleum Engineering and Geosciences and must include 6 sequential hours of social science.

College of Human Ecology

Officers of Instruction

Jeanne M. Gilley, Dean
Shirley P. Reagan, Associate Dean
Nancy M. Tolman, Director of Research and Graduate Studies

Mission

The mission of the College of Human Ecology is to provide the context for a scientific approach to the study of individuals and families and their interactions and relations with their near environment (food, clothing, shelter, interpersonal relationships, and resource management) and their external environment (human services, the workplace, and the marketplace). The integration of these elements provides the foundation for strong broad-based undergraduate programs and specialized graduate programs which emphasize quality of life, management skills and the importance of family systems in their historical and contemporary forms.

This mission is implemented through instruction, research, and service which involves:

-implementing undergraduate and graduate human ecology curricula that reflect current trends from the rapidly changing and complex professional environments that are designed to expand students' knowledge of the field, stimulate intellectual curiosity, cultivate original thought and expression, and enhance problem-solving skills.

-contributing to current knowledge through research in human ecology specialized areas.

-providing professional expertise to other professionals, the university community, and the community-at-large.

Center for Children and Families

The Center for Children and Families, the only such center in Louisiana approved by the Board of Regents, is operated by the College of Human Ecology. The Center encourages collaborative research, instruction and service that promote the well being of children and families. The Family and Child Studies Institute, one component of the Center, acknowledges a family strengths approach and sponsors the endowed Bruce Everist Lecture series. Another component of the Center, the Early Childhood Education Center, is a learning laboratory for three- and four-year-old children. Early Childhood Education majors observe, student teach and conduct research in that laboratory setting.

Curricula

Programs in human ecology are planned to meet the highest professional standards. All of Tech's College of Human Ecology programs are nationally accredited. The College of Human Ecology is accredited by the Council for Accreditation of the American Association of Family and Consumer Sciences. The Nutrition and Dietetics curriculum (DPD) is approved by the American Dietetic Association. Additionally, the teacher preparation programs are accredited by the National Council for the Accreditation of Teacher Education and meet state certification standards. The Early Childhood Education Center is accredited by the National Academy of Early Childhood Programs.

Human Ecology is a field of study composed of specialized disciplines, to promote the welfare and well-being of individuals and families 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 Rome, New York, and Dallas as a part of the merchandising study option. Practica and cooperative education work experiences occur in a variety of locations. Dietetic students receive clinical instruction in varied health care and food service facilities. 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. Louisiana Tech University was the third university in the south and the first university in Louisiana to offer human ecology. The College of Human Ecology at Louisiana Tech University is a leader in the field.

Undergraduate Degrees

The **Bachelor of Arts** degree is offered in Merchandising and Consumer Affairs. The **Bachelor of Science** degree is offered in Family, Infancy and Early Childhood Education and in Nutrition and Dietetics. Planned programs for minors and second teaching fields are available to provide flexibility of employment.

Admission

General admission requirements to the University apply to entering freshmen and transfer students. All entering freshmen enroll in the Division of Admissions, Basic and Career Studies and remain in this division until they have met the requirements for admission to the College of Human Ecology. While in that division, students interested in human ecology should identify their specific major and should be advised by human ecology faculty members.

Upper Division: Students in Merchandising and Consumer Affairs, Child Life, and Family Studies are eligible to apply for Upper Division status when they have a "C" average or above and 60 quality points and at least thirty semester hours credit including grades of "C" or above in the following: English 101, 102, Speech 110 or 377, and Mathematics (3 hours). They must have earned a passing grade in Human Ecology 127 and a grade of "C" or better in all Human Ecology courses taken during the first thirty hours. Students must be admitted to Upper Division before enrolling in Human Ecology courses numbered 300 or above.

Upper Division requirements for students with an concentration in Early Childhood Education or Family and Consumer Sciences Education are established by the University Teacher Education Council. These students must have earned forty-six semester hours or shall have earned

that number at the end of the quarter in which application is made, with an earned average of 2.5 and a minimum cumulative grade point average of 2.2. Students must have completed Human Ecology 127, Health & Physical Education activities (2 hours), Speech 110, Education 125, English 101, 102, 201 or 202 (9 hours), Science (9 hours), Social Studies (9 hours), and Mathematics (6 hours). A grade of "C" or better must be earned in English 101, 102, Speech 110, and Education 125. Students must have passed the General Knowledge and Communication Skills sections of the National Teacher's Exam. They must have had their speech and hearing checked and rated 'satisfactory' by the Louisiana Tech Department of Speech. Applicants must possess those physical, emotional, and mental traits needed for successful performance in a regular classroom and must not be on University academic or disciplinary probation or suspension. Any student seeking admission to Upper Division who has been convicted of a felony may be denied admission. All applications must be turned in to the Human Ecology Dean's office at least one week prior to the beginning of the quarter. A student must be admitted to Upper Division before enrolling in courses requiring Upper Division status.

Students in Nutrition and Dietetics must apply for admission to Upper Division Specialized Phase of the program before their junior year. Specific information about requirements is available from the Didactic Program in Dietetics (DPD) Director.

Scholastic Standards

Requirements for entrance to Louisiana Tech University are also requirements for the College of Human Ecology. Students transferring into human ecology from another institution should request that the Office of Admissions forward a copy of official transcripts to the College of Human Ecology 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 human ecology degree programs. Transfer students are required to complete a specific body of courses at Louisiana Tech University.

All students are advised to repeat human ecology 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 human ecology and professional education courses. A grade point average of 2.5 is required for enrollment in student teaching at both the secondary and early childhood levels. A grade point average of 2.5 is required for graduation from family and consumer sciences education and early childhood education and an acceptable score on the NTE is required for teacher certification.

Satisfactory completion of prerequisite courses and a curriculum grade point average of 2.85 are required for admission to the junior year of the nutrition and dietetics program. Satisfactory completion of prerequisite courses and a grade of "C" or better in all curriculum courses are also required. A 2.85 curriculum grade point average is required for graduation from this curriculum.

Catalog Requirements and Changes

Human Ecology 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. Students are advised to check the boards frequently.

Each student is responsible for meeting curriculum and catalog requirements for graduation, including scheduling of infrequently offered courses and completing courses in sequence. Students should consult with their advisers during early registration and when problems arise. Students with 60-70 hours credit should complete and secure adviser's approval of an up-to-date plan of study for their remaining quarters at Tech.

Electives and Minors

Some courses in human ecology are open to non-majors. Minors in consumer affairs, child development, family and child studies, merchandising, human nutrition, and gerontology have been outlined. Suggested electives for students in other colleges include the following:

Family and Child Studies Electives:

100, Marriage and Family Living; 200, Parenting; 201, Introduction to Child and Family Development; 210, Family Interpersonal Relationships; 221, Parent Involvement; 277, Guiding Infants and Young Children; 301, Early Childhood Development; 320, Family Theory; 331, Infant Development; 400, Contemporary Family Living; 410, Multi-Cultural Family Studies; 420, Issues in Family Life Education; 461, Administration of Early Childhood Education/Child Life Programs; 432, Children Under Stress.

Merchandising and Consumer Studies Electives:

118, Pattern Design and Construction; 238, Apparel Selection; 219, Textiles; 268, Apparel Design I; 308, Buying; 428, Apparel Design II; 439, Historic Costume I; 440, Historic Costume II; 498, Fashion Merchandising International; 246, Microcomputers in Personal and Family Management I; 256, Individual and Family Management; 366, Consumer Issues; 416, Interior Space Planning and Furnishings; 426, Housing; 456, Consumer Decision Making.

Food and Nutrition Electives:

103, Nutrition and Weight Control; 203, Human Nutrition; 223, Nutrition Education; 232, Basic Food Science; 233, Creative Experiences in Nutrition; 253, Sports Nutrition.

Minor in Merchandising

A minimum of 21 hours with at least 9 hours 300 level or above to be selected from:

Merchandising and Consumer Studies 118, 219, 238, 258, 268, 308, 338, 348, 368, 388, 419, 428, 429, 439, 440, 468, 488, 498.

Minor in Child Development

Required human ecology courses include:

Family & Child Studies 201, 301, 331, 320; Food & Nutrition 203. Seven additional hours may be selected from Family and Child Studies 100, 200, 210, 221 (2 hours), 277 (2 hours), 400, 410, 432; and Merchandising and Consumer Studies 218 (1 hour). A minor in Child Development does not meet teacher certification requirements.

Minor in Consumer Affairs

A minimum of 21 hours to be selected from: Merchandising and Consumer Studies 236, 246, 256, 356, 366, 426, 436, 456, 466.

Minor in Family and Child Studies

Required courses include Family and Child Studies 201 and 320. A minimum of 15 semester hours should be selected from the following: Family and Child Studies 100, 200, 221, 277, 301, 331, 400, 410, 420, 432, or 461. At least nine hours must be 300 level or above.

Minor in Human Nutrition

Required Courses in Food and Nutrition include: Food and Nutrition 103, 203, 253, 404, 414, 423, 443, 474.

Interdisciplinary Minor in Gerontology (24 semester hours) (At least 10 hours must be from courses 300 level or above)

Core Courses (15 semester hours)

Family and Child Studies 201, Family and Child Development OR Psychology 408, Human Growth and Development 3 semester hours

Health & Physical Education 406 3 semester hours
Health Aspects of Aging

Sociology 435 3 semester hours
Sociology of Aging

Family and Child Studies 447 3 semester hours
Issues in Gerontology

Practica 3 semester hours
(Education 420; Health & Physical Education 112; Human Ecology 467, 477, 478, or 479; OR Sociology Practica)

ELECTIVES (9 semester hours)
Select 9 hours from the courses listed below. Courses selected must be approved by your advisor. It is strongly suggested that ALL students elect either Psychology 475 or Sociology 436 which relate to death and grieving.

Counseling 400: Introduction to Counseling
Family and Child Studies 210: Family Interpersonal Relationships
Family and Child Studies 320: Family Theory
Family and Child Studies 400: Contemporary Family Living
Family and Child Studies 420: Issues in Family Life Education
Food and Nutrition 203: Human Nutrition
Health & Physical Education 292: Preventive Health
Health & Physical Education 416: Adult Fitness Programming
Health & Physical Education 401: Recreation and Leisure for the Older Adult
Psychology 474: Psychology of Adult Learning and Development
Psychology 475: Death, Dying, and Grievance Process
Psychology 480: Psychology of Women
Psychology 499: Health Psychology
Sociology 308: The Family
Sociology 425: Family Therapy
Sociology 436: Grieving and Loss

Student Organizations in the College of Human Ecology

A number of organizations provide students opportunities for professional and leadership development, service, and networking with other students, faculty, and professionals. These organizations include the following:

1. Organization of Human Ecology Students
2. Louisiana Tech Student Family and Consumer Sciences Association
3. Louisiana Tech Student Dietetic Association
4. Louisiana Tech Student LACUS (Louisiana Association on Children Under Six)
5. Consumer Club
6. Merchandising Club
7. Kappa Omicron Nu (National Honorary for Human Ecology Students)

Scholarships and Loans

In addition to university and state supported scholarships awarded through the Division of Financial Aid, human ecology majors may also apply for Human Ecology Alumni Freshman Scholarships. Selections are based on high school academic records, ACT scores and participation in extracurricular activities. Request applications from the College of Human Ecology.

Mary Wilks Chandler Scholarship

Representative Virgil Orr and Myrtis Orr established this scholarship to honor her mother, Mary Wilks Chandler. The scholarship is awarded to an incoming freshman student with outstanding academic promise.

Clyde and Mildred Mobley and Kola Mobley Fouche Memorial Scholarship

This scholarship was established by Mr. and Mrs. Laurie S. Mobley to honor his sisters, outstanding Louisiana Tech Human Ecology graduates. The scholarship of $750 a year for two years is awarded to a freshman.

F. C. and Gladys M. Haley Scholarship

Mr. F. C. Haley, a 1931 Tech graduate and a prominent Louisiana educator and his wife, established a scholarship of $1500. This award is designated for a first year human ecology student.

Clothielde Tuten Clark Scholarship Endowment

Mrs. Clothielde Tuten Clark established this scholarship to award to an incoming freshman student. Award recipients must have a minimum 22 ACT composite score.

The following scholarships are available for upper class Human Ecology students.

Rhoda L. Chambless Scholarship

The family of Mrs. Rhoda L. Chambless established this scholarship as a memorial. The scholarship is awarded annually to a junior human ecology major.

Willie Lou Durrett Scholarship

Dr. Mary Ellen Durrett, former head of home economics

at the University of Texas at Austin, established this scholarship to honor her mother, Willie Lou Durrett. The scholarship is awarded to an outstanding human ecology senior with interest in extension or child development.

Laurie S. and Helen Mobley Home Economics Scholarship
A scholarship for $750 for two years is awarded to a junior human ecology major annually. Mr. and Mrs. Laurie S. Mobley established this scholarship.

Lois M. Jackson Dietetics Advisory Board Scholarship
To recognize academic excellence in dietetics, the Lois M. Jackson scholarship is awarded annually to a junior nutrition and dietetics major.

Whetstone Scholarship
Mr. and Mrs. R. Terral Whetstone, alumni of Louisiana Tech, annually provide $600 for a sophomore scholarship.

Auto-Chlor Scholarship
Auto-Chlor System, a business in chemical sanitation, annually awards a scholarship to a sophomore nutrition and dietetics major.

Bette Heard Wallace Scholarship Endowment
This scholarship was established by alumni and faculty to honor Mrs. Wallace upon her retirement from the College of Human Ecology. To be eligible, a student must be at least a junior human ecology major and have an established record of leadership and scholarship.

Henry E. and Margaret A. Stamm Scholarship Endowment
John R. and Mary Margaret Stamm Clay established this scholarship to honor her parents, Henry E. and Margaret A. Stamm. Recipients must have a background of strong academic performance and demonstrate excellent academic potential.

Merle Burk Scholarship Endowment
This scholarship was established by Merle Burk, a former faculty member in the College of Human Ecology. The scholarship is awarded to a full time student majoring in one of the curricula in the College of Human Ecology.

Bachelor of Arts Degrees

The Bachelor of Arts Degree is awarded upon the completion of the program in Merchandising and Consumer Affairs.

Merchandising and Consumer Affairs

Students complete a freshman core of courses and then select a concentration in Merchandising or Consumer Affairs. The Consumer Affairs Concentration prepares students for employment with government and private consumer service agencies and/or businesses related to management and consumer education, customer service, consumer and housing policy, consumer public relations, and cooperative extension. A minor in general business is included in the course requirements.

The Merchandising Concentration prepares students for careers in merchandising, design, and promotion. Professional preparation includes studies in product creation, production and distribution, textiles, computer applications, and the opportunity to complete a minor in marketing, general business, or art.

In both concentrations, university study is supplemented by experiential learning in local and metropolitan job settings. Travel-study programs provide students opportunities to study the global aspects of their fields.

Freshman Merchandising and Consumer Affairs Curriculum

English 101, 102	6
Merchandising and Consumer Studies 246, 256	6
Human Ecology 127	1
Mathematics 110	3
Mathematics 111, 114, 125 or Statistics 200	3
Psychology	3
Science*	9
Speech 110	3
	34

*Must include both physical sciences (chemistry, physics, geology) and biological sciences with at least 6 hours from a two-quarter sequence.

Consumer Affairs Concentration

Freshman Year	Semester Hours
Freshman Merchandising and Consumer Affairs Curriculum	34
Sophomore Year	
Accounting 201, 202	6
Economics 201, 202	6
English 201 or 202	3
English 202 or 260 or 303	3
Political Science	3
Family & Child Studies 201, 210	6
Food & Nutrition 203	3
	30
Junior Year	
Merchandising & Consumer Studies 429	3
Fine Arts Appreciation Elective	3
Elective	6
Merchandising & Consumer Studies 356, 366, 426	9
History, American	3
Human Ecology 327	3
Marketing 300	3
Management 311	3
	33
Senior Year	
Electives	5
Merchandising & Consumer Studies 436, 456, 466	9
Family & Child Studies 441	3
Finance 318	3
Human Ecology Electives	6
Human Ecology Practica	3
Human Ecology 457	1
Marketing 320	3
	33
TOTAL SEMESTER HOURS	130

Merchandising Concentration

Freshman Year	Semester Hours
Freshman Merchandising and Consumer Affairs Curriculum	

Sophomore Year

Accounting 201	3
Merchandising & Consumer Studies 219, 238, 258, 268	12
Economics 215	3
English 201 or 202	3
Family & Child Studies 201, 210	6
Food & Nutrition 203	3
History, American	3
	33

Junior Year

Merchandising & Consumer Studies 348, 388, and 308	8
Merchandising & Consumer Studies, Restricted Elective	6
Art 290	3
Electives	6
Marketing 300 and 307 or 320	6
Social Science Elective**	3
	32

Senior Year

Electives	6
Human Ecology 457	1
Human Ecology Practica or Merchandising & Consumer Studies 498	3
Humanities Elective	3
Management 311 or 470	3
Marketing 435	3
Merchandising & Consumer Studies 416, 488, 439 or 440, 419 or 429	12
	31
TOTAL SEMESTER HOURS	130

**Social Sciences (economics, geography, anthropology, political science, psychology, sociology) must include a minimum of two disciplines.

Bachelor of Science Degrees

Bachelor of Science Degrees are awarded in Family, Infancy and Early Childhood Education and Nutrition and Dietetics. Students in Family, Infancy and Early Childhood Education may choose a concentration in Early Childhood Education, Family and Consumer Sciences Education, Child Life, or Family Studies.

Family, Infancy and Early Childhood Education

Students complete a freshmen core of courses and then select a concentration. Early Childhood Education and Family and Consumer Sciences Education are teacher preparation programs which are developed and maintained through the joint activities of the College of Human Ecology and Louisiana Tech University Teacher Education Council. Early Childhood Education prepares the student to teach in public school early childhood education and kindergarten programs and for careers with young children in centers for children and related programs. Family and Consumer Sciences Education prepares a student to teach vocational home economics in Louisiana secondary schools under the provision of the federal Education Amendments of 1976 as outlined in the State plan.

Child Life prepares students to become child life specialists primarily for hospital settings. Family Studies and Child Life both prepare students for a variety of human services positions including community support; counseling and youth agencies; law or public policy; business development officers; and employee assistance directors.

Freshman Family, Infancy and Early Childhood Education Curriculum

English 101, 102	6
Family & Child Studies 201, 210	6
Merchandising & Consumer Studies 246	3
Health & Physical Education 150	2
History 201 or 202	3
Human Ecology 127	1
Math 110	3
Math 111, 114, 125 or Statistics 200	3
Science*, Biological	3
Speech 110	3
	33

*Must include both physical sciences (chemistry, physics, geology) and biological sciences with at least 6 hours from a two-quarter sequence.

Early Childhood Education Concentration

Freshman Year	Semester Hours
Freshman Family, Infancy, and Early Childhood Education Curriculum	33

Sophomore Year

Merchandising & Consumer Studies 218	1
Art 301	3
Education 125	1
English 201, 202	6
Family & Child Studies 221, 276, 277	5
Library Science 201 or 450	3
Health & Physical Education Activity	2
Music	2
Psychology 204	3
Social Science**	6
Science*	3
	35

Junior Year

Education 323, 324, 441	9
Family & Child Studies 301, 311, 321, 331, 401	15
Food & Nutrition 203, 233	4
Health & Physical Education Activity	1
Special Education 300	3
Science*	3
	35

Senior Year

Education 416F, 475	8
Elective	3
Family & Child Studies 320, 410, 421, 461	15
Merchandising & Consumer Studies 256	3
Human Ecology 457	1
History 460 or Geography 310	3
Science, Physical	3
	36
TOTAL SEMESTER HOURS	139

*Science must include both physical sciences (chemistry, physics, geology) and biological sciences with at least six hours from a two-quarter sequence.

**Social Sciences (economics, geography, anthropology, political science, psychology, sociology) must include a minimum of two disciplines.

Students may complete the courses listed to obtain a specialty.

Infant/Toddler Specialty: Family and Child Studies 451 and Human Ecology 467 may be added to ECE: N-K curriculum to complete specialty.

Child Life Concentration

Freshman Year	Semester Hours
Freshman Family, Infancy, and Early Childhood Education Curriculum	33

Sophomore Year	
English 201, 202	6
Family & Child Studies 280, 291, 331	9
Merchandising & Consumer Studies 256	3
Health Information Management 103	3
Psychology 205, 206	6
Science*, Physical	3
Science*	3
	33

Junior Year	
Electives	6
Fine Arts Elective	3
Family & Child Studies 301, 320, 361	8
Food & Nutrition 203	3
Human Ecology Practica	3
Human Ecology Restricted Electives***	6
Social Science**	3
	32

Senior Year	
Family & Child Studies 410, 432, 461	9
Family & Child Studies Electives	6
Human Ecology 457	1
Human Ecology Practica	3
Restricted Electives***	12
Social Science**	3
	34
TOTAL SEMESTER HOURS	132

*Science must include both physical sciences (chemistry, physics, geology) and biological sciences with at least six hours from a two-quarter sequence.

**Social Sciences (economics, geography, anthropology, political science, psychology, sociology) must include a minimum of two disciplines.

***Faculty advisor must approve electives.

Family Studies Concentration

Freshman Year	Semester Hours
Freshman Family, Infancy, and Early Childhood Education Curriculum	33

Sophomore Year	
Electives	5
English 201, 202	6
Family & Child Studies 100, 200	6
Merchandising & Consumer Studies 256	3
Food & Nutrition 203	3
Psychology 102	3
Science*	3
Science*, Physical	3
	32

Junior Year	
Family & Child Studies 301, 320, 331	9
Fine Arts Appreciation Elective	3
Human Ecology Practica	3
Human Ecology Restricted Electives	8
Restricted Electives***	7
Social Science**	3
	33

Senior Year	
Family & Child Studies 400, 410, 420, 432, 441	15
Family & Child Studies Elective	3
Human Ecology 457	1
Human Ecology Practica	3
Restricted Electives***	9
Social Science	3
	34
TOTAL SEMESTER HOURS	132

*Science must include both physical sciences (chemistry, physics, geology) and biological sciences with at least six hours from a two-quarter sequence.

**Social Sciences (economics, geography, anthropology, political science, psychology, sociology) must include a minimum of two disciplines.

***Faculty advisor must approve electives.

Family and Consumer Sciences Education Concentration (formerly Home Economics)

Freshman Year	Semester Hours
Freshman Family, Infancy, and Early Childhood Education Curriculum	33

Sophomore Year	
Merchandising & Consumer Studies 118 or 238, 219	6
Education 125	1
English 201, 202	6
Merchandising & Consumer Studies 236 or Food and Nutrition 253	3
Merchandising & Consumer Studies 256	3
Human Ecology 267A	1
Political Science 201	3
Psychology 204, 206	6
Science*, Physical	3
Science*	3
	35

Junior Year	
Economics 215 or Sociology 312	3
Education 310	3
Electives	6
Family & Child Studies 320	3
Food & Nutrition 203, 232	6
Health & Physical Education 280	3
Human Ecology 327	3
Human Ecology Elective	3
Science*	3
Special Education 300	3
	36

Senior Year	
Education 402, 403, 416, 475	16
Family & Child Studies 410	3
Merchandising & Consumer Studies 426, 456	6
Human Ecology 405, 415, 457, and 467A	6
Human Ecology Restricted Elective	3
	34
TOTAL SEMESTER HOURS	138

*Science must include both physical sciences (chemistry, physics, geology) and biological sciences with at least six hours from a two-quarter sequence.

**Social Sciences (economics, geography, anthropology, political science, psychology, sociology) must include a minimum of two disciplines.

Nutrition and Dietetics

Programs in Dietetics include an undergraduate didactic

program, an internship, and a graduate program. The undergraduate didactic program provides learning experiences that enable students to master the knowledge requirements needed for entry-level practice. Mastery of course content in the didactic program and successful completion of the internship are required for meeting The American Dietetic Association eligibility requirements to write the Registration Examination for Dietitians. The internship and graduate programs are described in detail in the graduate program section of the University Bulletin. The Louisiana State Board of Examiners in Dietetics and Nutrition will disapprove the application for licensure if the applicant has been convicted of a felony.

The undergraduate didactic program culminates in a Bachelor of Science degree in Nutrition and Dietetics. The specialized phase of the program begins in the junior year. Completion of specified courses, a minimum curriculum grade point average of 2.85, and application and acceptance are required for admission to the upper division specialized phase of the program. In order to graduate from the program, a student must achieve a minimum curriculum GPA of 2.85 and grades of at least "C" in all curriculum courses.

The undergraduate didactic and internship programs are generalist programs. Graduates of these programs are prepared to assume positions in health care facilities such as hospitals and community health centers as well as management positions in food service systems.

Nutrition and Dietetics

Freshman Year	Semester Hours
English 101, 102, 201 or 202	9
Family & Child Studies 201	3
Merchandising & Consumer Studies 246	3
Food & Nutrition 103, 253	4
Human Ecology 127	1
Mathematics 110	3
Chemistry 130, 131, 132, 133	10
	33
Sophomore Year	
Family and Child Studies 210	3
Accounting 101 or 201	3
Merchandising & Consumer Studies 256	3
Food & Nutrition 203, 232	6
Psychology 102	3
Speech 110	3
Statistics 200	3
Bacteriology 210 or 214	3/4
Biological Sciences 225, 226, 227	7
	34/35
Junior Year	
Economics 201 or 215	3
Electives	3
Food & Nutrition 302, 303, 305, 343, 352, 403, 404, 414, 423	23
Sociology 201 or 205	3
English 201 or 202 or 303	3
	35
Senior Year	
Electives	5
Fine Art Elective	3
Food & Nutrition 322, 393, 412, 472, 474	17
Human Ecology 457	1
History 201 or 202	3
Management 311	3
	32
TOTAL SEMESTER HOURS	134/135

*Science must include both physical sciences (chemistry, physics, geology) and biological sciences with at least six hours from a two-quarter sequence.

**Social Sciences (economics, geography, anthropology, political science, psychology, sociology) must include a minimum of two disciplines.

The fine arts elective is to be a course in music, art, or theater appreciation.

Dietetic Internship

The Dietetic Internship is described in the graduate section of the University Bulletin.

The Graduate Program

Master of Science Degrees offered by the College of Human Ecology are described in the graduate section of the University Bulletin.

College of Life Sciences

Officers of Instruction

Jeanne M. Gilley, Interim Dean
James D. Liberatos, Director,
Division of Research and Graduate Studies
Peter W. Gallagher, Head, Department of Agricultural Sciences, Technology and Education
Kenneth E. Griswold, Head, Department of Clinical Laboratory Science and Bacteriology
James G. Spaulding, Head, Department of Biological Sciences
G. H. Weaver, Director, School of Forestry
Lou H. Stebbins-Davison, Head, Department of Health Information Management
Virginia R. Pennington, Head, Division of Nursing

Mission

The mission of the College of Life Sciences is to provide the student with an education in the various fields of biology and related health areas an understanding of environmental needs. Graduates are eligible to seek employment in agricultural business, agricultural education, animal sciences, forestry, medical professions, plant sciences, soil sciences, wildlife, zoology, environmental science, medical technology, health information management, or nursing.

Organization and Curricula

The College of Life Sciences is organized into the Departments of Agricultural Sciences, Technology and Education, Biological Sciences, Clinical Laboratory Science and Bacteriology, Health Information Management, the School of Forestry, the Division of Nursing, and the Division of Research and Graduate Studies. It offers 12 four-year curricula leading to the degree of Bachelor of Science, a two-year Pre-Nursing Curriculum leading to a Bachelor of Science degree, a two-year nursing curriculum leading to an Associate of Science degree, a two-year medical record technology program leading to an Associate of Science Degree, and a Basic-Life Sciences one-year program. The curricula offered are:

Agricultural Business
Animal Science (Including Pre-Veterinary Medicine, Equine, and Livestock and Dairy Production)
Biological Sciences (Including Pre-Medicine and Pre-Dentistry)
Environmental Science
Forestry (Concentrations: Management, Business, Wildlife, and Natural Resources Management)
Health Information Management (2 options)
Medical Technology (Including Pre-Physical Therapy, Pre-Occupational Therapy, Pre-Nuclear Medicine Technology, Pre-Radiologic Technology, Pre-Respiratory Therapy)
Microbiology (Bacteriology)
Nursing (2 options)
Plant Science (Agronomy and Horticulture)
Wildlife Sciences (Biological Sciences)

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, and physics; 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 Biological 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.

Cooperative Education

Students majoring in animal science, dairying, forestry, agriculture-business, wildlife sciences, agriculture education, environmental sciences, and plant science may elect to participate in a co-op program during one or more terms during their college career. In curricula employing this approach, students will register for cooperative education credit 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.

Co-op experience has as its 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 work experience may provide students an entree for their first job after graduation.

More and more students without farm backgrounds are enrolling in agriculture; the coop experience 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; the internship program supplements the on-campus laboratory and classroom experiences.

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 coop 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 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.

Allied Health Scholarships are available to students majoring in the allied health professions of medical technology, health information management, speech pathology, nursing and pre-medicine. Recipients are students who have demonstrated academic ability at Louisiana Tech in an allied health major.

The Ruston Hospital Endowment is available to Allied Health Science students from Lincoln Parish.

The Mary Jarrell Nursing Scholarship is awarded annually to six selected students majoring in A.D. Nursing.

Mary Marguerite Merritt Scholarship
This scholarship is awarded to students who are currently enrolled or have been accepted into the Associate Degree Nursing Curriculum at Louisiana Tech University. The recipient will be selected upon the following criteria: GPA of 2.5 or greater; financial need; leadership/activities, organization; awards; scholarships/other financial aid; and future career plans.

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 have medicine or dentistry as a career goal and maintain at least a 3.0 average during the freshman year.

Outstanding Freshman Biological Sciences Student. Awards of $100-$300 to one or more outstanding Biology majors at the end of their freshman year (completion of 30 semester hours).

Scott M. Weathersby Endowment Award. An annual award from funds generated by the Scott M. Weathersby Endowment. Presented to the Outstanding Graduating Senior Biology Student.

Students in the Department of Agricultural Sciences, Technology and Education are eligible for the following scholarships:
Benjamin Forbes Leadership Scholarship of $125 per quarter is awarded annually to an animal science student specializing in dairy production that shows outstanding leadership potential.

The Block and Bridle Brittain Simms Memorial Scholarship of $150 is awarded annually to a Block and Bridle student for outstanding leadership, service and club activity.

The Block and Bridle Richard Hill Memorial Scholarship of $150 per quarter is awarded annually to an outstanding first year Block and Bridle student.

The Block and Bridle Sullivan Memorial Scholarship of $150 per quarter is awarded annually to a Block and Bridle student for outstanding scholastic achievement and club activity.

Don Hinton Dairy Scholarship of $175 per quarter is awarded annually to an animal science student specializing in dairy production.

The C. G. Hobgood Memorial Scholarship of $600 is awarded annually to an advanced student in the area of Agronomy.

The T. W. Ray Johnson Memorial Scholarship is available to Agricultural Education and Animal Science majors.

Horticulture Society Scholarships are awarded annually to students majoring in Horticulture.

John A. Wright Horticulture Scholarship of $750 is awarded annually to a student majoring in Horticulture.

Louisiana Association of Nurserymen awards $500 annually to a student majoring in Horticulture.

The Todd McAfee Memorial Scholarship awards $500 annually in the spring quarter to a senior in Agricultural Business or Agricultural Education.

Louisiana Garden Club Federation awards $1,000 annually to a student majoring in Horticulture.

The Agricultural Endowment Scholarships are available to entering freshmen and continuing students in all fields of agriculture.

The Bessie Mae Talbert Purdy Scholarships are available to students majoring in Agriculture Education.

In addition to these scholarships, there are often donations by local garden clubs for scholarships, departmental and college-wide scholarships, University Financial Aid in the form of grants, loans, work-study and student labor.

The School of Forestry awards scholarships on the basis of academic merit to continuing students and new freshmen or transfer students. The priority deadline for Forestry Scholarship Applications is May 1. Scholarship applications may be obtained from the School of Forestry, Box 10138 T. S., Ruston, LA 71272.

The Louisiana Tech Forestry Alumni Association. An annual award of $1000 to one or more selected forestry students.

School of Forestry Freshmen Awards. An annual award of $1,000 to beginning forestry freshmen.

Richard M. Sisk Trust Fund. An annual award of $1,000 to one or more beginning forestry freshmen.

The Louisiana Forestry Foundation. Several competitive

awards of $1,000 to selected forestry students.

Seedling and Sapling Club of the Louisiana Forestry Association. An annual award of $200 to an outstanding forestry junior or senior.

Willamette Industries. An annual award of $825 to a selected forestry student.

The Walter Kellogg Forestry Scholarship. An annual award of $1000 each to a selected forestry student.

Lloyd P. Blackwell Scholarship. $1000 per year is awarded to one or more selected forestry students.

The Dan and Dave Metz Scholarship. An annual award of $600 to one or more forestry students.

W. L. Browder Scholarship. An annual award of $600 to one or more selected forestry students.

Andrulot Scholarship. An award of $500 to one or more selected Forestry Summer Field Session students.

E. W. Merritt Scholarship. An annual award of $1,000 to one or more selected forestry students.

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 agricultural campus consisting of approximately 850 acres, provides the facilities which are devoted specifically to instruction, research and demonstrational work in the agricultural sciences. The T. C. Pipes Foundation property provides a 270 acre living laboratory for wildlife, ecology and forestry studies. Biological Sciences is domiciled on the main campus in Carson-Taylor Hall. Nursing, Health Information Management, and Clinical Laboratory Science and Bacteriology are 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, stall, 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 provides 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 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 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 Dean will serve as adviser 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 - Biological Sciences 120, 121, 122, and 123	8
Life Sciences 101	1
Professional or Technical Courses (In field of possible interest)	8
Free Elective	3
TOTAL SEMESTER HOURS	32

Department of Agricultural Sciences, Technology and Education

The Department of Agricultural Sciences, Technology and Education offers the Bachelor of Science degree in Agricultural Business, Animal Science, Environmental Science, and Plant Science. In conjunction with the College of Education, the Bachelor of Science degree in Agricultural Education can be earned while fulfilling the requirements for teacher certification in Secondary Education. Studies in additional areas of concentration may be pursued by consulting an adviser for help in choosing courses in the major and supporting areas to modify the basic curriculum for the development of a specialty in the student's chosen field. The Animal Science Curriculum has four areas of concentration: General Livestock, Dairy, Equine, and Pre-Veterinary Medicine. The Environmental Science curriculum is a multi-disciplinary, inter-departmental program offering three specialty areas: Earth and Agricultural Sciences,

Biological Sciences, and Environmental and Occupational Health Sciences. The Plant Science Curriculum consists of two major areas of concentration: Agronomy (Crops, Soil Science, and Integrated Pest Management) and Horticulture (Ornamental Plants, Nursery Management, and Landscape Design).

Following is a two-year core curriculum for agricultural programs throughout the State of Louisiana. All State Universities have agreed to accept these courses toward any agricultural degree program upon transfer from one university to another.

Core Course	Credits
Animal Science 111	4
Art 290, Music 290, or Speech 290	3
Biological Sciences 120, 121, 122, 123	8
Chemistry 100, 101, 102, 103, 104	8
Economics 215	3
English 101, 102, 201 or 202, 303	12
History 201 or 202	3
Life Science 309 or MIS 101	3
Mathematics 111, 112 or 222	6
Plant Science 101, 200, 202	7
Psychology, Sociology, or Geography Elective	3
Speech 377	3
	63

Agricultural Business

The Agricultural Business Curriculum gives the student exposure to a wide breath of the plant and animal sciences, while providing a minor in general business. A second minor is chosen in one of the following areas: Agronomy, Animal Science or Horticulture. Graduates are qualified for employment in a variety of agricultural-related fields, including many specialized jobs in industry requiring a fundamental knowledge of both business and agriculture. Students are strongly encouraged to participate in the Cooperative Education Program in order to gain valuable experience while accumulating academic credit.

Agricultural Business Curriculum

Freshman Year	Semester Hours
Animal Science 111	4
Biological Sciences 120, 121, 122, 123	8
English 101, 102	6
Mathematics 110, 114 or 111, 122	6
Geography, Psychology, Sociology, or Political Science Electives	6
Plant Science 101	3
	33
Sophomore Year	
Accounting 201, 202	6
Animal Science 301	3
Business Law 255	3
Chemistry 130, 131, 132, 133	10
Economics 215	3
English 201 or 202	3
Forestry/Life Science 309	3
History 201 or 202	3
	34
Junior Year	
Agricultural Business 320	3
Art 290, Music 290, Speech 290 or HPE 280	3
English 303	3
Finance 318	3
Life Science 323 (2)	6
Management 311	3
Marketing 300	3
Plant Sciences 202, 211 or 320	6
Speech 377	3
	33
Senior Year	
Agricultural Business 402, 411, 430	7
Environmental Science 300	3
Life Sciences 420	3
Management 340 or Marketing 307	3
Agriculture Minor*	14
Plant Science 403 or 440	3
	33
TOTAL SEMESTER HOURS	133

*The student may choose a minor in Agronomy, Horticulture, or Animal Science through selection of 14 hours of supporting courses from the appropriate list. This curriculum will also provide the student a minor in General Business in addition to the major in Agricultural Business.

Agronomy Minor: Plant Science 200, 211, 307, 312, 315, 400, 421, 422, 423.

Horticulture Minor: Plant Science 200, 282, 300, 301, 312, 315, 383, 400, 421, 422.

Animal Science Minor: 14 additional hours in Animal Science with a minimum of 9 hours in 300- 400 level course (exception Animal Science 425).

Agricultural Education

The curriculum in Agricultural Education prepares the student for teaching vocational agriculture in secondary schools. The College of Education manages this program in conjunction with the Department of Agricultural Sciences, with student advising within this department. Students in agricultural education must meet the general requirements for admission to teacher education in the College of Education's upper division. The curriculum in agricultural education leading to a Bachelor of Science degree requires 147 semester hours, nine of which are earned in selected high schools in the area of apprentice teachers.

Service courses in technical agriculture are provided to give the student training in the areas of plant science, animal science, forestry, soils, farm management, and farm mechanics. An active collegiate chapter of Future Farmers of America provides practical experience in this important leadership activity.

The curriculum is listed under the College of Education - Curriculum, Instruction, and Leadership. Inquiries about this curriculum may be made to either this department or to the College of Education.

Animal Science

Animal Science is comprised of the fields of poultry, swine, dairy, beef, equine, and veterinary science.

The main objective in Animal Science is to give instruction and practical experience in judging, breeding, feeding and management of livestock and related industries. Through course selection the student may

prepare for livestock farming, management, business or graduate study in the animal science or veterinary medicine area. Selection of directed electives permits special training for work with feed companies, milk, egg or poultry operations, food processing industries, managerial or marketing groups, supply and equipment cooperatives, agricultural extension services, public relations, and other organizations associated with animal production or management.

Opportunities are afforded students in Animal Science to obtain practical experience in beef, dairy, and equine operation and management through the University herds of registered beef cattle, dairy cattle and thoroughbred horses. A modern, automated milking parlor, dairy barn, beef barn, steer feed lot, crop lands and pastures are utilized for instruction and student training. A meats laboratory for the study of meat and its cutting, preservation, storage and utilization, and a dairy processing plant equipped for processing fluid milk and manufacturing diary products provide students opportunities for acquiring scientific and practical experience in different aspects of processing meat and diary products. The Equine 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 pen, riding arena, and 1/2 mile training tracks are used to train students to be equine trainers and managers. Nationally affiliated chapters of the Block and Bridle Club, Alpha Zeta and Alpha Gamma Rho, and the Rodeo Club and Pre-Vet Club provide social and educational activities for students pursuing animal science as a profession.

Requirements for a Minor

A minor in Animal Science includes: 21 hours with a minimum of 9 hours in 300-400 level courses. Courses may be selected from Animal Science 111 plus any combination of other Animal Science courses (exception-Animal Science 425).

Animal Science Curriculum

Freshman Year	Semester Hours
Animal Science 111	4
Art 290, HPE 280, Music 290 or Speech 290	3
Biological Sciences 120, 121, 124, 125	8
English 101, 102	6
Mathematics 110, 114	6
Psychology 102, Sociology 201 or Political Science 201	6
	33
Sophomore Year	
Animal Science 201, 202, 204 or 211 (2)	6
Bacteriology 210	3
Chemistry 130, 131, 132, 133	10
English 201 or 202	3
History 201 or 202	3
Management 201	3
Plant Science 211	3
Speech 110	3
	34
Junior Year	
Animal Science 301, 302 or 304, 307, 309, 315,	15
Directed Electives	6
English 303	3
Life Sciences 300	3
Plant Science 200, 202	4
Management Information Systems 101 or Forestry/Life Sciences 309	3
	34
Senior Year	
Agricultural Business 411	1
Animal Science 401, 409	6
Directed Electives	21
Economics 215	3
Life Sciences 420	3
	34
TOTAL SEMESTER HOURS	135

Through selection of directed electives, the student may take specialized courses in one of the following areas of complete degree requirements:

Dairy Production Specialty

	Semester Hours
Animal Science 318, 407	6
Six hours from the following:	6
Animal Science 302 (3)	
Animal Science 304 (3)	
Animal Science 305 (3)	
Animal Science 306 (3)	
Six hours from the following:	6
Animal Science 319 (2)	
Animal Science 405 (3)	
Animal Science 419 (1)	
Animal Science 430 (3)	
Bacteriology 405 (4)	
Directed Electives	9
	27

Equine Specialty

	Semester Hours
Animal Science 320, 321, 322, 405, 411, 440	15
Directed Electives	12
	27

Livestock Production Specialty

	Semester Hours
Animal Science 303, 318, 319, 405, 410, 419	14
Directed Electives	13
	27

Pre-Veterinary Medicine Specialty

	Semester Hours
Animal Science 318, 405	5
Bacteriology 214	4
Chemistry 100, 101, 102, 103, 104	8
Chemistry 250, 251, 252, 253, 254, 351	11
Directed Electives	3
Mathematics 111, 112	6
Physics 209, 210	6
Biological Sciences 124, 125	4
	47

Pre-Veterinary Specialty students are not required to take Chemistry 130, 131, 132, and 133 or Math 110 and 114 as listed in the core curriculum.

Additional degree requirements for directed electives may be met from the following: Any courses approved by the adviser, including nonrequired Animal Science courses.

Special problems courses (Life Sciences or Animal Science 425A, 425B and 425C), for a maximum of six semester hours.

The Cooperative Education Program (Life Sciences 321, 322 and 323), where the student is placed in a paid, part-time or full-time university or industry position for a maximum of six semester hours.

Pre-Veterinary Medicine

Students in the Pre-Veterinary Medicine Specialty, having an exceptional grade point average and an acceptable score on the Medical College Admissions Test (MCAT) or Graduate Record Examination (GRE), may wish to apply for admission to veterinary school during their junior year. These students may become candidates for the B. S. degree in Animal Science after completing the first year of work at a veterinary school. The student must arrange for transfer of credit and follow the procedures applicable for graduation at Louisiana Tech University.

Application for admission to the veterinary program at Louisiana State University in Baton Rouge is made in February for admission in August of the same year. The MCAT or GRE score must be provided from the year prior to application for admission.

Only residents of Louisiana and Arkansas are normally eligible to apply for admission to the L.S.U. Veterinary School. Residence status is determined by L.S.U. and residence status at Louisiana Tech University has no bearing on such determination.

Environmental Science

The environmental science program has been designed as a multi-disciplinary, inter-departmental curriculum with three general specialty areas: Biological Sciences, Environmental and Health Sciences, and Earth and Agricultural Sciences. Cooperating departments include: Biological Sciences, Clinical Laboratory Sciences and Bacteriology, and Agricultural Sciences. Students initially report to the Agricultural Sciences Department, where an advisor will be assigned within the appropriate discipline, depending upon the student's major area of interest. The student with the advisor's recommendation, is to choose a minimum of 21 credit hours within the chosen specialty area.

Through this program, students are prepared for careers with environmental regulatory agencies, commercial laboratories, consulting, and graduate studies. It is expected that the demand for trained personnel will escalate in response to increased enactment of legislation and the concerns of society with regard to the continued degradation of our environment. This program stresses the importance of a junior or senior internship or cooperative education experience to prepare the student for a career in this field.

Environmental Science Curriculum

Freshmen Year

Biological Sciences 120, 121, 122, 123	8
Chemistry 100, 101, 102, 103, 104	8
English 101, 102, 201 or 202	9
Environmental Science 200	3
Math 111 or 230, 112 or 231	6
	34

Sophomore Year

Chemistry 250, 251, 252, 253, 254	8
Biological Sciences 124 and 125	4
Environmental Science/Plant Science 202	3
Environmental Science/Bacteriology 210	3
Environmental Science/Biological Science 313	3
Environmental Science 400	1
Forestry/Life Sciences 309	3
Geology 111 and 121	4
History 201 or 202	3
Speech 377 or English 463	3
	35

Junior Year

Art 290, Music 290, Speech 290, or HPE 280	3
Economics 215	3
English 303	3
Environmental Science/Life Science 323	3
Environmental Science 300 and 400	4
Environmental Science Specialty*	9
Geography 203	3
Geology 318	3
Political Science 201	3
	34

Senior Year

Chemical Engineering 456	3
Environmental Science/Clinical Lab 446	3
Environmental Science/Bacteriology 401	3
Environmental Science/Biological Science 458	3
Environmental Science/Life Sciences 323	3
Environmental Science 400 and 456	4
Environmental Science Specialty*	12
Life Sciences 420	3
	34
Total Semester Hours	137

*Environmental Science Specialty will consist of 21 semester hours from one of the following three areas, with a minimum of 15 hours at the 300 and 400 level to be selected by student and advisor.

Biological Sciences Specialty

	Semester Hours
Agricultural Business 450	3
Bacteriology 315	3
Bacteriology 330	4
Bacteriology 418	4
Bacteriology 486	3
Biological Sciences 210	3
Biological Sciences 284	4
Biological Sciences 317	3
Biological Sciences 320, 321	4
Biological Sciences 330	3
Biological Sciences 345	3
Biological Sciences 360	3
Biological Sciences 405	3
Biological Sciences 413	3
Biological Sciences 414	3
Biological Sciences 420	4
Biological Sciences 426	3
Biological Sciences 434	3
Biological Sciences 435	3
Biological Sciences 485	4
Chemistry 205	4
Chemistry 351, 352, 353, 354	8
Forestry 215	3
Forestry 301	3
Forestry 418	3
Geology 200	3
Plant Sciences 200	1
Plant Sciences 215	3
Plant Sciences 302	3

Plant Sciences 315	4
Plant Sciences 330	3
Plant Sciences 421	3
Plant Sciences 422	3
Plant Sciences 423	3

Earth and Agricultural Sciences Specialty

Bacteriology 315	3
Bacteriology 413	3
Bacteriology 414	3
Bacteriology 418	4
Bacteriology 486	4
Chemistry 205	4
Chemistry 281	3
Chemistry 351, 352, 353, 354	8
Chemistry 462	3
Civil Engineering 304	2
Forestry 215	3
Forestry 405	3
Forestry 418	3
Geography 374	3
Geology 302	3
Geology 303	3
Geology 305	3
Geology 421	3
Geology 442	3
Geology 460	3
Geology 485	4
Physics 202 or 210	3
Physics 262	1
Plant Science 200	1
Plant Science 215	3
Plant Science 302	3
Plant Science 315	4
Plant Science 330	3
Plant Science 400	3
Plant Science 405	3
Plant Science 415	3
Plant Science 421	3
Plant Science 422, 423	6

Environmental and Occupational Health Sciences Specialty

Bacteriology 330	4
Bacteriology 405	4
Bacteriology 406	4
Bacteriology 418	4
Chemistry 351	3
Chemistry 353	1
Clinical Lab Science 351	1
Clinical Lab Science 353	3
Clinical Lab Science 454	8
Environmental Science 421	3
Environmental Science 422	3

Plant Sciences

The Plant Science Curriculum consists of two options - Agronomy and Horticulture. Both deal with the cultural and applied aspects of plant production.

Assistance is given to the graduate in finding employment in the many professional fields and agricultural businesses associated with Agronomy and Horticulture. Career opportunities include agricultural extension, floral design, garden center management, greenhouse production, grounds maintenance, interior plantscaping, landscape design, contracting nursery and field production, pest management consultant, tree surgeon, arborist, wholesale or retail nursery management.

The Plant Sciences are able to offer the student some of the finest facilities available. Lomax Hall houses 5,000 square foot conservatory, approximately 25,000 square feet of glass and aluminum greenhouse space, a 100-seat auditorium, landscape design drafting lab, computer lab, crops lab, pest management lab, soils lab, grafting and propogation lab, and darkroom. In addition to this, there are six additional greenhouses, a vegetable garden, landscape display garden, arboretum, turf plots, and agronomy field plots.

The courses offered in the Agronomy Option are divided between crops, soils, and pest management 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.

The Horticulture Option offers students both scientific and practical training in the production, utilization, and marketing of fruits, vegetables, flowers, and ornamental plants; and emphasizes ornamental plants, nursery and greenhouse management and landscape design. The Horticulture Club sponsors the annual Poinsettia Show and participates in an annual educational tour of horticulture in other parts of the United States.

Requirements for a Minor

A minor in Plant Science: 21 hours with a minimum of 9 hours in 300-400 level courses. Courses may be selected from Plant Science 101 plus any combination of other Plant Science courses (exception-Plant Science 400).

Agronomy Option

Freshman Year	Semester Hours
Bacteriology 210	3
Biological Sciences 120, 121	4
Chemistry 130, 131, 132, 133	10
English 101, 102	6
Mathematics 111, 112	6
Plant Science 101	3
	32
Sophomore Year	
Art 290, Music 290 or Speech 290	3
Biological Sciences 122, 123	4
Economics 215 or Agricultural Business 320	3
English 202	3
History 201 or 202	3
Physics 209	3
Plant Sciences 200, 201, 211, 215	10
Political Science, Psychology or Sociology Elective	3
Speech 110 or 377	3
	35
Junior Year	
Biological Sciences 330, 405	6
English 303	3
Forestry/Life Science 309	3
Life Sciences 300	3
Plant Sciences 307, 308, 312, 315, 319, 330	18
Political Science, Psychology, Sociology, or Geography Elective	3
	36
Senior Year	
Agricultural Business 411	1

Biological Sciences 414	3
Electives	7
Life Sciences 420, 456	6
Plant Sciences 405, 409, 415, 421, 422, 423	18
	35
TOTAL SEMESTER HOURS	138

Horticulture Option

Freshman Year	Semester Hours
Biological Sciences 120, 121, 122, 123	8
English 101, 102, 202	9
Geography, Psychology, Political Science or Sociology Elective	3
Mathematics 110, 114	6
Plant Sciences 101, 210	6
Speech 110 or 377	3
	35
Sophomore Year	
Chemistry 130, 131	6
Economics 215 or Agricultural Business 320	3
Geography, Psychology, Political Science or Sociology Elective	3
History 201 or 202	3
Plant Sciences 200, 202, 215, 282, 283, 382, 383	19
	34
Junior Year	
Art 290, Music 290 or Speech 290	3
Biological Sciences 330	3
Directed Electives*	4
English 303	3
Forestry/Life Science 309	3
Plant Sciences 300 (3), 301, 302, 312, 315, 320	19
	35
Senior Year	
Agricultural Business 411	1
Directed Electives*	10
Life Sciences 420	3
Plant Sciences 400 (3), 401, 402, 440 441, 442, 445	20
	34
TOTAL SEMESTER HOURS	138

*Directed Electives in Horticulture to be chosen from the following list by adviser and student: Art 115, 116, 125, Architecture 130, 131, Biological Science 405, Life Sciences 300, Management 201 or 340, Marketing 235 or 300, Plant Sciences 409, 421, 422, 423, Biological Science 414, 450.

Department of Biological Sciences

The curricula and courses offered by the Department of Biological Sciences are designed to prepare students to meet a broad range of career goals. The curricula define two degree programs at the undergraduate level: Bachelor of Science in Biology and Bachelor of Science in Wildlife Sciences. Within the Biology degree a student can select to emphasize Plant Biology, Molecular Biology, or Animal Biology. The graduate curriculum leads to the Master of Science in Biological Sciences. Each degree program includes general education courses, a group of required courses in biology, chemistry, physics, and mathematics and electives appropriate to a specific program. These are detailed below. Students wishing to complete a degree program in the Department of Biological Sciences should consult with the head of the department.

Requirements for a Major

All students pursuing a degree program in Biological Sciences shall satisfactorily complete the courses specified in one of two curricula. Elective subjects must be selected with the advice and approval of the adviser. The Department of Biological Sciences reserves the right to accept toward graduation only credits with a grade of "C" or higher in Biological Sciences courses.

Requirements for a Minor

Minor in Biological Sciences: 21 hours with a minimum of 9 hours in 300-400 level courses. Selection of courses include Biological Sciences 120, 121, 122, 123, 124, 125, 310, 313, plus a physiology course (Biological Sciences 320 & 321 or 405).

Minor in Wildlife Sciences: 27 hours with 12 hours in 300-400 level courses. Courses must include Biological Sciences 120, 121, 122, 123, 124, 125, 210, 313, 317, 457 (plus one of the following) 429, 430, 432, 433, 434 or 455.

Biological Sciences Freshman Year

The degree programs in the Department of Biological Sciences begin with a common curriculum. The courses of the freshman year reflect the core of the biological sciences. These courses allow the student time to decide which major to pursue. After completing these courses the student begins taking the advanced courses leading to the degree program they have chosen.

Freshman Biological Sciences Curriculum

Biological Sciences 120, 121, 122, 123, 124, 125	12
Chemistry 100, 101, 102, 103, 104	8
English 101, 102	6
Mathematics 111, 112	6
Social Science Elective	3
	35

Biological Sciences
Plant Biology Concentration

The opportunities for graduates in botany are exceedingly varied. Graduates have found employment in positions at experimental stations, in federal agencies such as the United States Bureau of Plant Industry, The National Park Service, The Forest Service, and the United States Bureau of Plant Quarantine and in public and private environmental agencies. Employment opportunities also exist in commercial greenhouses, nurseries and floral shops. Graduate work in botany can lead to teaching and research positions.

Plant Biology Concentration

Freshman Year	Semester Hours
Freshman Biological Sciences Curriculum	35
Sophomore Year	
Bacteriology 214	4
Biological Sciences 205, 221, 222, 223	12
Chemistry 250, 251, 252, 253, 254	8

English 201 or 202 3
Physics 209, 210, 261, 262 8

35

Junior Year
Biological Sciences 330, 350, 355 11
Computer Science Elective 3
English 303 3
Foreign Language Electives 6
History Elective 3
Social Science Electives 6

32

Senior Year
Fine Arts Elective 3
Biological Sciences 310, 313, 405, 480 10
Speech 377 3
Statistics Elective 3
Free Electives 9

28

TOTAL SEMESTER HOURS 130

Animal Biology Concentration

This curriculum is designed for students wishing to enter a variety of careers including graduate work at universities, medical school, dental school or occupational therapy, optometry, podiatry and satisfies the requirements for entrance into most medical and dental schools. This curriculum allows direct employment in research, technical sales, state and federal agencies and environmental assessment companies to name a few.

Animal Biology Concentration

Freshman Year — Semester Hours
Freshman Biological Sciences Curriculum 35

Sophomore Year
Bacteriology 214 4
Biological Sciences 290 4
Chemistry 250, 251, 252, 253, 254 8
English 201 or 202 3
History Elective 3
Physics 209, 210, 261, 262 8
Speech 377 3

33

Junior Year
Biological Sciences 310, 320, 321 7
Biological Sciences Elective 3
Chemistry 351, 352, 353, 354 8
Computer Science Elective 3
English 303 3
Fine Arts Elective 3
Foreign Language 6

33

Senior Year
Biological Sciences 313, 480 4
Biological Sciences Electives 11
Social Science Elective 6
Statistics Elective 3
Free Electives 5

29

TOTAL SEMESTER HOURS 130

Molecular Biology Concentration

The graduate following this concentration is prepared to pursue graduate work in microbiology, cellular biology, and molecular biology, or to go into professional schools such as medical or dental school. Direct employment opportunities are available in research laboratories or environmental testing laboratories.

Molecular Biology Concentration

Freshman Year — Semester Hours
Freshman Biological Sciences Curriculum 35

Sophomore Year
Bacteriology 214 4
Biological Sciences 310 3
Chemistry 250, 251, 252, 253, 254 8
English 201 or 202 3
History Elective 3
Physics 209, 210, 261, 262 8
Speech 377 3

32

Junior Year
Bacteriology 330, 411 7
Biological Sciences 313, 315 6
Chemistry 351, 352, 353, 354 8
Computer Science Elective 3
English 303 3
Foreign Language 6

33

Senior Year
Bacteriology 407, 412 7
Biological Sciences 410, 422, 480 7
Fine Arts Elective 3
Social Science Elective 6
Statistics Elective 3
Free Electives 4

30

TOTAL SEMESTER HOURS 130

Pre-medical, pre-dental and other pre-professional students are strongly advised to complete their degree programs before beginning professional school. Students with exceptionally high grade points may apply early and be accepted after completion of the junior year. Such a student may receive a Bachelor of Science in Biological Sciences from Louisiana Tech University after completing one year of professional school if they meet the following criteria: (1) completion of 90 credit hours, (2) completion of the General Education Requirements, (3) completion of the following Biological Sciences requirements: Biological Sciences 120-125, Biological Sciences 310, 313, and a minimum of 8 credit hours from the following: Biological Sciences 290, 320, 321, 315, 400 or 422.

Wildlife Sciences

The Wildlife Sciences curriculum is designed for students who desire scientific knowledge of the conservation and management of wildlife. The curriculum emphasizes the role of man in natural resources conservation. It is designed to train conservation workers as managers, naturalists and researchers.

Wildlife Sciences Curriculum

Freshman Year — Semester Hours
Freshman Biological Sciences Curriculum 35

Sophomore Year

Bacteriology 210	3
Biological Sciences 221, 222, 223, 457	12
Chemistry 131	3
English 201 or 202	3
History Elective	3
Mathematics 220	3
Physics 209	3
Speech 377	3
	33

Junior Year

Biological Sciences 310, 313, 455, 458	12
English 303	3
Fine Arts Elective	3
Computer Science Elective	3
Psychology 487	3
Social Science Elective	3
Statistics Elective	3
	30

Options

Senior Year

Aquatic Ecosystems

	Semester Hours
Animal Science 309	3
Bacteriology 401	3
Biological Sciences 355, 429, 434, 435, 480	14
Directed Electives	13
Structured Aquatic Internship	9
	42

Terrestrial Ecosystems

	Semester Hours
Animal Science 309	3
Biological Sciences 317, 345, 432, 433, 480	13
Forestry 202, 302, 306, 314, 315, 317, 320, 321, 322	21
Free Elective	1
Plant Science 200, 202	4
	42

Pre-Graduate School Option

	Semester Hours
Biological Sciences 290, 317, 355, 432, 434, 480	18
Chemistry 132, 133	4
Directed Biological Sciences Electives	11
Directed Management Electives	6
Statistics 402	3
	42
TOTAL SEMESTER HOURS	140

Computer Science Electives: Forestry 309, Life Sciences 309, Merchandising and Consumer Studies 246

Fine Arts Electives: Art 290, Music 290, Health and Physical Education 280, or Speech 290

Social Science Electives: anthropology, economics, geography, political science, psychology, or sociology (with minimum of two disciplines represented).

Statistics Electives: Life Sciences 420, Psychology 300, or Statistics 200, 402

Directed Electives for Aquatic Ecosystems Option: Biological Sciences 317, 320, 321, 360, 414, 415, 483, 484, 485

Directed Biological Sciences Electives for Pre-Graduate School Option: Bacteriology 401, Biological Sciences 205, 330, 350, 405, 429, 430, 432, 433

Directed Management Electives: Biological Sciences 345, Forestry 202, 314, Plant Science 422

Department of Clinical Laboratory Science and Bacteriology

General Information

Guidance and coursework in the Department of Clinical Laboratory Science and Bacteriology are designed to integrate a fundamental, broad-based, education in the natural and social sciences, humanities and interpersonal relationships, with up-to-date specialized coursework in those disciplines associated with microbiology and the health sciences.

The four-year curriculum in Medical Technology includes the core coursework, specified below, which satisfy the pre-professional educational options in medicine, dentistry, nuclear medicine technology, cytotechnology, histopathology, radiological technology, respiratory therapy, physicians assistants, surgical assistants, physical therapy and occupational therapy.

Pre-Professional Core Curriculum

English, including literature	9 hours
Mathematics, including College Algebra and Trigonometry	6 hours
General Chemistry	8 hours
Fine Arts Elective	3 hours
Social or Behavioral Sciences/Humanities	18 hours
Computer Science Elective	3 hours
Biological, Physical or Clinical Laboratory Sciences	20 hours

Specific courses required for admission to the professional phase of the student's education in the above cited professions are selected within this core curriculum and may vary with each professional option. The Clinical Laboratory Science and Bacteriology adviser is to be consulted for specific or additional course requirements.

Professional education in all of these health science disciplines is pursued at nationally-accredited educational facilities located in Louisiana and adjoining states.

Admission to the professional phases of all programs is on a competitive basis, and is predicated on completion of all pre-professional course requirements, grade point average and other criteria.

The total curriculum in each discipline is designed to culminate in the baccalaureate degree and to fulfill those educational and professional requirements for professional certification and career entry.

The program in microbiology is designed for students who are interested in the study of microorganisms. It is 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.

A student may minor in Medical Technology or Microbiology by declaring this intention to the Department of Clinical Laboratory Science and Bacteriology and completing 21 hours of specified course work.

Medical Technology

The medical technologist is a thoroughly educated clinical specialist who primarily designs, performs,

evaluates, and supervises biological and chemical testing. Job opportunities for these specialists exist in hospitals, research facilities, government, and industry. The Bachelor of Science degree in Medical Technology requires a minimum of 142 semester hours, including at least 40 semester hours of clinical training in one of our accredited affiliate medical centers.

At the beginning of the first quarter of the junior year in the curriculum, the students are informed as to whether they meet the basic academic requirements for admission to the professional education component. This decision is based on the student's progress in completing all required pre-professional courses, the maintenance of a 2.5 grade point average, with no grade less than a "C" in any subject area, and the recommendation of the departmental faculty.

If the above criteria are met, the student must complete the formal application process to the selected professional training sites by the end of the first quarter of his or her junior year. This includes a transcript evaluation by the Department of Clinical Laboratory Sciences and Bacteriology. Selection for admission to the professional program will be made on a competitive basis by the Admissions Committee of those sites, by using both academic and non-academic criteria.

The student will be informed by the third quarter of the junior year of the clinical site at which professional education will take place. If a students are non-selected for admission, they are counseled as to their identified deficiencies and appropriate remedial action or alternative career opportunities.

Students who are accepted into the professional program are enrolled as full-time students in the Department of Clinical Laboratory Science and Bacteriology for one calendar year. An appropriate plan of study chosen from senior-level Clinical Laboratory Science courses numbered 460 through 489 is established by the students and their Program Director for that year. On-campus registration is coordinated with campus faculty with appropriate fees paid by the student at the time of registration. The student must comply with all University policies and procedures, as well as those set forth by the clinical affiliate during their professional education. This includes the requirement of maintaining a grade of "C" or better in all clinical courses. On-site living expenses are the responsibility of the student and the usual source of financial aid (i.e., loans, grants, scholarships) are available to these clinical students.

After completion of the professional education, the student is awarded a Bachelor of Science degree in Medical Technology and is eligible for professional certification awarded after passing a nationally recognized registry examination.

Medical Technology Clinical Training Sites

The clinical facilities of 10 full-service medical laboratories are used to provide the professional education component of Medical Technology. These laboratories are strategically located in metropolitan areas throughout the region and provide "hands-on" training in this and related disciplines.

Alton Ochsner Medical Foundation, New Orleans, LA
Lake Charles Memorial Medical Center, Lake Charles, LA
Our Lady of the Lake Regional Medical Center, Baton Rouge, LA
Rapides General Hospital, Alexandria, LA
St. Elizabeth Hospital, Beaumont, TX
St. Francis Medical Center, Monroe, LA
St. Patrick's Medical Center, Lake Charles, LA
Touro Infirmary, New Orleans, LA
Veterans Administration Medical Center, Shreveport, LA
Wadley Regional Medical Center, Texarkana, TX

Requirements for a Minor

A minor in Medical Technology includes: 21 hours with a minimum of 9 hours in 300-400 level courses. Courses may be selected from Clinical Laboratory Science 110 through 453.

Medical Technology Curriculum

Freshman Year	Semester Hours
Chemistry 100, 101, 102, 103, 104	8
English 101, 102	6
Mathematics 111 or 230, 112 or 231	6
Biological Sciences 120, 121	4
Biological Sciences 124, 125	4
Clinical Laboratory Science 110	1
Social Sciences Electives*	3
	32
Sophomore Year	
English 201 or 202	3
Bacteriology 214	4
History Elective	3
Chemistry 250, 251, 252, 253, 254	8
Forestry 309	3
Social Science Elective	3
Clinical Laboratory Science 245, 341	7
Arts Elective**	3
	34
Junior Year	
Bacteriology 412	4
Biological Sciences 290*** or Bacteriology 406	4
Chemistry 351, 353	4
Social Science Electives	3
Speech 377	3
Health Information Management 325	2
Life Sciences 420	3
English 303	3
Clinical Laboratory Science 452	1
Directed Electives****	9
	36
Summer Session	
The student and Program Director will choose at least 10 semester hours from Clinical Laboratory Science 460 through 486	10
Senior Year	
The student and Program Director will choose at least 30 semester hours from Clinical Laboratory Science courses numbered 460 through 486	30

*Select from Economics, Geography, Anthropology, Political Science, Psychology, Sociology (must include a minimum of 2 disciplines).

**Select from Art 290, H&PE 280, Music 290, Speech 290

***Pre-Med/Pre-Dental tracts should select Biological Sciences 290

****Select any Clinical Laboratory Science, Bacteriology, or Life

Sciences courses, Physics 209, 210, 261, 262, MRS 103, Chemistry 352, 354 or Biological Sciences 401. Pre-Med/Pre-Dental students should select Physics electives.
TOTAL SEMESTER HOURS 142

Microbiology (Bacteriology)

The curriculum in microbiology offers, in addition to the general education in microbiology, fundamental education 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 field 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.

Requirements for a Minor

A minor in Microbiology includes: 21 hours with 9 hours in 400 level courses. Courses may be selected from Bacteriology 210 or 214 with a sufficient number of additional Bacteriology courses to total 21 hours.

Microbiology (Bacteriology) Curriculum

No New Students Are Being Accepted In This Curriculum At This Time

Freshman Year	Semester Hours
Biological Sciences 122, 123	4
Chemistry 100, 101, 102, 103, 104	8
English 101, 102	6
Life Sciences 101	1
Mathematics 111, 112	6
Speech 110	3
Biological Sciences 120, 121	4
	32
Sophomore Year	
Bacteriology 210, 306	6
Biological Sciences 350	4
Chemistry 250, 251, 252, 253, 354	8
English 202	3
Foreign Language Elective	3
Physics 209, 210, 261, 262	8
Statistics 200	3
	35
Junior Year	
Bacteriology 315, 330, 401	10
Chemistry Elective	4
Computer Science Elective	3
English 303	3
Foreign Language Elective	3
History 200	3
Life Sciences 300	3
Social Science Electives	6
	32
Senior Year	
Arts Elective	3
Bacteriology 405, 406, 407, 411, 412, 418	22
Social Sciences Electives	6
Biological Sciences 401	3
	34
TOTAL SEMESTER HOURS	133

School of Forestry

Mission and Goals:

The mission of the School of Forestry is to provide educational opportunities, conduct research, and supply other public services in an academic unit with a proven and continuing reputation of superior performance. The specific goals of these programs are to:

-improve and maintain excellence in forestry undergraduate education by establishing, implementing, examining and updating programs and policies which contribute to that end;

-conduct research which contributes to the attainment of Louisiana's educational, economic, social and environmental goals regarding forest lands and associated resources;

-maintain and promote continuing education activities which disseminate knowledge and technology to private landowners and/or other interested agencies, groups or organizations; and

Curricula:

The School of Forestry offers a Bachelor of Science degree program in Forestry. The Forestry curriculum, with concentration areas in forest management, forestry business, natural resources management, and forestry wildlife, is accredited by the Society of American Foresters (SAF). SAF is an association representing some 17,000 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 schools in the United States.

Individual professional courses (Forestry prefix) must be completed with a grade of "C" (2.0) or better. Graduating seniors are expected to pass the Registered Foresters Exam offered by the Mississippi Board of Registration for Foresters.

Employment opportunities are outstanding. Graduates are employed by both private industries and government 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. Government agencies include the Natural Resources Conservation Service, Forest Service, and similar state agencies working not only in technical forestry but also in the professional aspects of land use management, conservation, and wood utilization.

Junior Year Summer Program

Successful completion of Forestry Summer Field Session at the end of the junior year is a prerequisite for senior standing. Students who have completed all camp prerequisites through the junior year, including all 100 level courses, and have not less than an overall "C" average are

eligible to attend the summer program. Summer Field Session students are also required to meet the conditions as outlined in the Forestry Summer Field Session Academic and Operating Policies document which is available from the School of Forestry upon request.

Summer Field Session

The Louisiana Tech Forestry Summer Field Session follows the junior year of study. The summer field session is arranged to give students field experience in the forest in addition to classroom instruction.

Senior Field Trips

During the senior year, many field trips are made 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 government agencies. Many of the important forest types, patterns of ownership, and a wide variety of wood-using industries are located within easy traveling distance of the campus.

Expenses

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. 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 field session. Transportation fees are assessed in each course with field laboratory exercises during Fall, Winter, or Spring Quarters.

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.

A number of student assistants are employed by the School each year. This enables the students to work part time while attending school.

Professional Organizations

The School sponsors the Louisiana Tech Student Chapter of the Society of American Foresters and the Student Chapter of the Forest Products Society for professional activities of forestry students. Alpha Phi Chapter of Xi Sigma Pi, the national forestry honor society, invites juniors and seniors with outstanding academic records to membership each year.

Transfer Credit

Students may complete 60 semester hours of the forestry major at regionally accredited institutions. However, transfer credit will be accepted for courses completed with a "C" or higher grade.

The professional forestry core courses must be completed at Louisiana Tech University.

Students who are considering transfer to the School of Forestry should contact the Director's Office, School of Forestry, prior to enrollment at other institutions.

Requirements for a Minor

A minor in Forestry includes: 24 hours to include Forestry 101, 202, 205, 301, 302, 306, 312 or 313, 404, and 406.

Forestry Curricula

Freshman Year	Semester Hours
Forestry 101, 110	3
English 101, 102	6
Biological Sciences 122, 123	4
Accounting 101 or 201	3
Mathematics 112	3
Economics 215	3
History 201	3
Social Science Elective**	3
	28
Sophomore Year	
Mathematics 222	3
Chemistry 100, 101, 102, 103, 104	8
Forestry 205, 206, 405	7
Art Elective*	3
Social Sciences Elective**	3
English 202	3
Professional Electives***	6
	33
Junior Year	
Forestry 301, 302, 306, 309, 312 or 313, 314	17
English 303	3
Physics 209	3
Professional Electives***	10
	33
Summer Field Session	
Forestry 315, 317, 318, 319, 320, 321	12
Senior Year	
Life Science 420	3
Forestry 401, 402, 404, 406, 410, 411, 413, 415, 422	23
Speech 377	3
Professional Electives***	5
	34
TOTAL SEMESTER HOURS	140

*Must take Art 290 or Music 290 or Speech 290 or HPE 280.

**Must take Geography, Political Science, Psychology, Sociology, or Economics (minimum of two disciplines).

***See professional electives by concentration area.

Business Concentration Area - Professional Electives*

Business Law 255	3
Marketing 300	3
Management 311, 340, 333	9
Accounting 202	3
Finance 318	3
Management Information Systems 435	3
Forestry 202, 312, 313, 322, 345, 450	15

*Cannot exceed 18 hours of CAB hours

Wildlife Concentration Area - Professional Electives

Forestry 202, 322, 345, 450	10
*Biological Sciences 120, 121, 124, 125, 210, 317, 432, 433, 458	23
Biological Sciences 313, 413, 457	9

*These courses are required to meet certification requirements of the Wildlife Society.

Forest Management Concentration Area - Professional Electives

Forestry 202, 303, 312 or 313, 322, 345, 412, 450	16 or 17
Civil Engineering 412, 437	6
Management 201, 311	6
Plant Science 215, 319, 330, 420	11

Natural Resources Management Concentration Area - Professional Electives

Geology 111, 121, 318	7
Biological Sciences 313, 413	6
Journalism 450	3
Forestry 202, 312 or 313, 322, 345, 450	12 or 13
Civil Engineering 412	3
Plant Science 215, 330, 421	9
Chemical Engineering 456	3

Department of Health Information Management

Health Information Technology

Health information management professionals collect, integrate, and analyze primary and secondary health care data, disseminate information and manage information resources related to the research, planning, provision, and evaluation of health care services.

High school students planning to enter the Health Information Technology program should take the general college preparatory courses and acquire basic keyboarding skills.

Transfer credit from another accredited health information management program in a regionally accredited college will be evaluated to determine similarity of course content. Credit will be granted for courses that are the same in content and in which the student earned at least a "C". Credit from a non-accredited program will be granted provided the course is the same in content, the student earned at least a "C" in the course, and mastery of course material is validated by examination.

The student is required to take the Health Occupations Basic Entrance Test (HOBET) during the first quarter he/she is enrolled in the technology program.

The program requires six quarters of study on the campus plus one quarter off campus at clinical sites.

The structure of the program requires students to complete certain courses in a specified sequence in order to complete their studies within the two-year time frame. Therefore it is very important that first-year students develop a plan of study with their assigned advisor. This plan of study will be placed on file in the Department of Health Information Management (HIM) office before or during registration for the winter quarter. Failure to develop a curriculum plan with the advisor and to follow the plan could significantly prolong the course of study. A request for a waiver of a stated prerequisite course must be submitted to the student's advisor who will make a recommendation to the committee of HIM faculty. The committee will consider overall GPA, HIM GPA, and prior work experience in the decision to approve the waiver.

The program includes a directed practice component in which the student performs medical record procedures in hospitals and other health care facilities. To be eligible to register for directed practice, the student must earn a minimum grade of "C" in prerequisite courses and achieve a minimum GPA of 2.25 in the curriculum. Prior to acceptance in the final affiliation course the student much achieve a minimum Louisiana Tech University cumulative GPA of 2.0.

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

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 HIM faculty will determine whether remedial course work is necessary before placing the student in directed practice. Students must obtain a "C" in all required courses before being eligible for graduation from the program. A HIM student may repeat only one HIM course, elective or required. The student will be permanently suspended from the HIM programs following the second HIM course grade below a "C".

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

The program is accredited by the Commission on Accreditation of Allied Health Education Programs in cooperation with the Council on Accreditation of the American Health Information Management Association. Graduates of the program are eligible to write the accreditation examination of the American Health Information Management Association. Graduates who pass this examination may use the credential, ART, Accredited Record Technician. The 2-year program leads to the Associate of Science degree.

Health Information Technology Curriculum

Freshman Year	Semester Hours
English 101, 102	6
Health Information Management 103, 107, 108, 206, 280	12
Math 110 and Statistics 200	6
Biological Sciences 224	3
Merchandising and Consumer Studies 246	3
	30
Sophomore Year	
Health Information Management 106, 200, 207, 208, 209, 213, 214, 222, 223, 224, 226, 228, 233	32
Clinical Laboratory Science 447	3
Management 201	3
	38
TOTAL SEMESTER HOURS	68

Health Information Administration Program

Health information management professionals collect, integrate, and analyze primary and secondary health care data, disseminate information and management information resources related to the research, planning, provision, and evaluation of health care services.

High school students planning to enter the program should take the general college preparatory courses and

acquire basic keyboarding skills.

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 Health Information Management (HIM) course, a committee of Health Information Management faculty will evaluate to determine placement in the curriculum and remedial coursework, if any, necessary. Transfer credit from another accredited health information program in a regionally accredited college will be evaluated to determine similarity of course content. Courses with the same content in which the student earned at least a "C" can be transferred. Credit from a non-accredited program will be granted provided the course is the same in content, the student earned at least a "C" in the course, and mastery of course material is validated by examination.

The program requires twelve quarters of study on the campus plus one quarter off-campus at clinical sites.

During the first quarter of enrollment in the program the student is required to take the Health Occupations Basic Entrance Test (HOBET).

Students are required to adhere to stated prerequisite courses. A request for a waiver of a stated prerequisite course must be submitted to the student's advisor who will make a recommendation to the committee of HIM faculty. The committee will consider overall GPA, HIM GPA, and prior work experience in the decision to approve the waiver.

Following prerequisite freshman-level courses a student is eligible to register for a directed practice course in a healthcare facility if he/she has a curriculum GPA no less than 2.25 and a minimum grade of "C" in the required prerequisite 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 HIM faculty will determine whether or not remedial coursework is necessary before placing the student in directed practice.

A HIM student may repeat no more than one HIM course, elective or required. The student will be permanently suspended from the HIM programs following the second HIM course grade below a "C".

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

The quarter preceding graduation is spent at off-campus affiliated sites where the student will gain experience in a variety of healthcare organizations. These experiences may be clustered in the North Louisiana area. There are additional sites in other cities in Louisiana, Texas, Mississippi, Arkansas and other states for students who are able to spend a period of time in one of these areas. Each student affiliation experience is individually planned with the student to fulfill the educational requirements within the student's financial and travel limitations. These affiliation experiences will be scheduled for students who have:

1. completed all coursework on-campus,
2. have no grade in required courses in the curriculum less than a "C",
3. have a curriculum GPA of no less than 2.25,
4. and have an overall GPA of no less than 2.0.

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

A student wishing to minor in Health Information Administration may do so by declaring this intention to the program director and by completing the courses required for a minor in the program curriculum.

The program has received the Louisiana State Board of Regents' Commendation of Excellence, the highest recognition awarded to an academic program by this group.

The program is accredited by the Commission on Accreditation of Allied Health Education Programs in cooperation with the Council on Accreditation of the American Health Information Management Association. Graduates of the program are eligible to apply to write the registration examination of the American Health Information Management Association. Graduates who pass this examination may use the credential, RRA, Registered Record Administrator. This program leads to the Bachelor of Science Degree.

Students seeking information concerning admission to the Health Information Administration Program may contact the Health Information Management Department, P. O. Box 3171, Louisiana Tech University, Ruston, LA 71272.

Health Information Administration Curriculum

Freshman Year	Semester Hours
English 101, 102	6
Mathematics 110, 125	6
Merchandising and Consumer Studies 246	3
Biological Sciences 225, 226	4
Health Information Management 103*, 106*, 107, 108, 200	10
	29
Sophomore Year	
Chemistry 130	3
Health Information Management 206, 207*, 208, 209, 214, 222, 223*, 224, 226*, 280	23
Psychology 102	3
Clinical Laboratory Science 447	3
	32
Junior Year	
Biological Science 227, 228	4
Chemistry 103	1
Elective	3
English 201, 202	6
Health Information Management 213, 311, 321, 325	8
Management 311	3
Sociology 201	3
Speech 110 or 377	3
	31
Senior Year	
Art Elective**	3
Clinical Laboratory Science 450, 451	4
Social Science Elective	3
Health Information Management 416, 421, 430, 431, 450	16
History Elective	3

Life Science 420	3
Management 470, 472	6
Management Information Systems 435	3
	41
TOTAL SEMESTER HOURS	133

*Required courses for a minor in Health Information Administration.

**Art 290, Music 290, Speech 290, or Health and Physical Education 280.

***Economics, geography, political science, advanced psychology, or advanced sociology.

Before choosing electives, students must get approval from their adviser. A student wishing to qualify for the Board of Regents' Certification of Excellence will need an additional 6 credit hours above introductory level in a foreign language.

Division of 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 sit for the examination required for state licensure as registered nurses. **THE LOUISIANA STATE BOARD OF NURSING RESERVES THE RIGHT TO DENY A STUDENT ADMISSION TO CLINICAL COURSES IF THEY HAVE EVER BEEN ARRESTED, CHARGED WITH, CONVICTED OF, PLED GUILTY OR NO CONTEST TO, OR BEEN SENTENCED FOR ANY CRIMINAL OFFENSE.**

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:

a. Acceptable scores on the ACT.
b. Grade point average of 2.6 or better from high school.
c. If applicable, evidence of LA licensure as a practical nurse.
d. 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.
e. Applicants must furnish satisfactory evidence of good health on forms to be sent by the Division of Nursing. An annual physical examination is required. A chest x-ray and Hepatitis B vaccine are required upon admission to first nursing course.
f. Nursing student must hold current C.P.R. certification.
g. Students who hold or have held licensure in any health care discipline and who have or have had disciplinary action against such license, and/or students who have ever been arrested, charged with, convicted of, pled guilty or no contest to, or been sentenced for any criminal offense shall petition the Louisiana Board of Nursing for review and action regarding their right to practice as students of nursing in Louisiana prior to entry into the first clinical course.

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 and accident 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 nursing program is approximately $1100.

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 in Nursing 113 may take Nursing 109, 110, and 112 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
Biological Sciences 225, 226, 227	7
Mathematics 110	3
Life Sciences 101	1
English 101	3
Bacteriology 214	4
Psychology 102	3
	36
Summer Quarter	
Nursing 116	5
	5
Sophomore Year	
Nursing 210, 212, 214, 216	18
Psychology 408	3
Statistics 200	3
English 102	3
	27
TOTAL SEMESTER HOURS	68

Listed below are general academic course requirements for the Pre-Nursing Curriculum. These courses meet core curriculum requirements for baccalaureate degrees in Louisiana. The student is advised to contact the school of nursing to which he/she will be transferring for any specific course requirements of that program.

Pre-Nursing Curriculum

English 101, 102**; 201 or 202	9
Mathematics 110 or 111, Statistics 200**	9
Biological Sciences 225, 226, 227, 228	8
Bacteriology 214	4
Chemistry 130, 131, 132	10
Psychology 102, 408, 418	9

Sociology 201	3
Food and Nutrition 203	3
History 201 and 202***	6
Speech 110	3
Economics 215	3
Art 290 or Music 290 or Speech 290	3
	67

**May substitute 3 hours foreign language above the 100 level. Substitutions may be made with approval of the department head. After completing above curriculum the student may transfer to a four-year nursing program to complete the requirements for the baccalaureate degree in nursing.

The Graduate School

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 University of Louisiana System 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 Education (Fifth-Year Program)
Master of Fine Arts
Master of Professional Accountancy
Master of Science
Specialist in Education
Doctor of Business Administration
Doctor of Education
Doctor of Engineering
Doctor of Philosophy

The graduate degrees and curricula, by colleges, are as follows:

The Graduate School
Interdisciplinary Ph. D. Program in Applied Computational Analysis and Modeling

College of Administration and Business
Master of Business Administration (Specialties available as follows:)
- General (no specialty)
- Accounting
- 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 and Audiology

Master of Fine Arts
Master of Science (Curricula available as follows:)
- Chemistry
- Mathematics
- Physics

College of Education
Master of Arts (Curricula as follows:)
- Counseling
  - Elementary School Counseling
  - Secondary School Counseling
  - General Counseling
- Educational Psychology
- Industrial/Organizational Psychology

Master of Science (Curricula as follows:)
- Curriculum and Instruction
- Health and Physical Education

Master of Education 5th-Year Program/Certification
- Art Education
- Business Education
- Elementary Education
- English Education
- Foreign Language
- Health and Physical Education
- Mathematics Education
- Music Education
- Science Education
- Social Studies Education
- Speech Education
- Vocational Agriculture

Specialist (Curricula as follows)
- Reading
- Counseling

Doctor of Education
- Curriculum and Instruction
- Education Leadership

Doctor of Philosophy
- Counseling Psychology

College of Engineering
Master of Science
A student selects an area of concentration in concert with the advisory committee. The major engineering disciplines are available as follows:
- Biomedical Engineering
- Chemical Engineering
- Computer Science
- Civil Engineering
- Electrical Engineering
- Industrial Engineering (including Operations Research option)
- Manufacturing Systems Engineering
- Mechanical Engineering
- Petroleum Engineering

Doctor of Engineering
Doctor of Philosophy
- Biomedical Engineering

College of Human Ecology
Master of Science
- Human Ecology Education
- Nutrition and Dietetics

College of Life Sciences
Master of Science in Biological Sciences

Admission

Admission by transfer is permissible if the transferring student is eligible to re-enter the institution from which applicant is transferring and **MUST** meet Tech's entrance requirements.

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 Graduate Admissions Office at least 3 weeks in advance of registration for the session in which the student expects to enroll. Transcripts must be mailed direct from the college/university to Louisiana Tech. Any credentials missing before a student's first complete term of registration will result in the student not receiving graduate credit, nor will an official Louisiana Tech academic transcript be provided to the student. 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 two or more quarters (except for the summer term.)

If a student has been out of school for only one regular quarter (excluding the summer term), then a written or verbal request for readmission should be made directly to the Graduate School. There is no application fee required for this process.

Unconditional Admission

Unconditional Admission requires that the applicant must have earned a bachelor's degree from a regionally accredited college, and the minimum grade point average to be considered for Unconditional Admission is 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. The minimum grade point average to be considered for Conditional Admission is 2.25 on all work attempted or a 2.50 average on the last 60 hours attempted, and the applicant must 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 one 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 310. 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 Graduate Dean 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 to 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 (general).

College of Education: Graduate Record Examination (general) 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 Human Ecology: Graduate Record Examination (general).

College of Life Sciences: Graduate Record Examination both the general test and the subject test in Biology for all master's programs.

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, Ruston, LA 71272. Telephone (318) 257-2488.

Summary of Admission Procedures

INITIATE	INITIATE THROUGH	TIME
1. Obtain application for Admission forms	Director of Graduate Admissions	At least 4 weeks prior to registration
2. Return completed forms	Director of Graduate Admissions	Must be received at least 3 weeks prior to registration
3. Have all necessary official transcripts and test scores sent to Tech	Director of Graduate Admissions	Must be received at least 3 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 from Louisiana Tech University, a student must have a GPA of at least 3.0 on all work pursued for graduate credit while registered at Louisiana Tech, as listed on the student's transcript, and a GPA of at least 3.0 on all graduate courses listed on the student's approved plan of study. No grade lower than "C" and no more than two "C's" will count toward a graduate degree.

A student will be dropped from graduate status if his/her quarterly GPA or cumulative GPA, as listed on the student's transcript, drops below 3.0 on all work pursued for graduate credit at Louisiana Tech for three consecutive quarters. This rule applies to all graduate students whether they are currently pursuing a graduate degree or not.

Transfer credit for graduate courses will be posted on the student's transcript only by written request from the student's graduate committee chairperson and approved by the college graduate director. Transfer credit will only be posted for courses listed on the student's approved plan of study.

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. Friday of the fourth week of the following quarter is the deadline for removing an incomplete grade, 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 and 690. 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 five 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 five 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. The hours of a course in which a student receives a grade of "WF" will be charged in hours attempted and will be computed as an "F" in the student's GPA. A student who withdraws from a class after the first five weeks of a quarter will receive a "F" in that class.

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 in 551, 590, 690, or Education 580.

Before registering, a graduate student must obtain his or her adviser'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 appropriate Graduate Director's 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 must 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-and 600-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.

Six graduate semester hours is considered full-time for a graduate student, and 3 graduate semester hours is half-time status. A student receiving a full-time assistantship must be qualified as a full-time graduate student. Though a graduate degree candidate may carry only the courses required for graduation at the end on the quarter and still be considered a full-time student, a student holding an assistantship is still required to take the proper number of hours to be eligible to receive the assistantship: 3 hours for a part-time assistantship, and 6 hours for a full-time assistantship.

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 and 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. 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 for Graduate Studies and to the Registrar within the first four weeks of 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 adviser 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

Upon approval of the department involved, a maximum of 12 semester hours of graduate resident credit, or 1/3 of the hours required for the master's degree, may be transferred for degree credit from a U. S. regionally accredited college or university. The grade earned must be "B" or above, and the credits are accepted as applicable to the master's degree program by the student's academic college. No transfer credit for extension courses will be accepted.

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 adviser -- 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, to the Dean of Graduate School 7 working days before the expected date of graduation, and to Prescott Memorial Library 2 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 exclusive graduate courses, in addition to the thesis, to be taken in the area in which the second degree is being earned. Some colleges may require more than 15 hours. Transfer hours will not be approved on a second master's degree.

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.

Transfer Credits

Upon approval of the department involved, there would be no limit at the doctoral level regarding transferring courses for degree credit from a U. S. regionally accredited college or university. The grade earned must be "B" or above, and the credits are accepted as applicable to the degree program by the student's academic college. No transfer credit for extension courses will be accepted.

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 working days before the expected date of graduation, to the Dean of Graduate School 7 working days before the expected date of graduation, and to Prescott Memorial Library 2 working 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.

Examinations and Admission to Candidacy

After completion of a minimum of two full academic years of graduate work after compliance with 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 Program
Interdisciplinary Ph.D. Program in Applied Computational Analysis and Modeling

Officers of Instruction

Richard J. Greechie, Director, School of Science
Richard L. Gibbs, Head, Department of Physics
Barry L. Kurtz, Head, Department of Computer Science
James D. Nelson, Associate Dean, College of Engineering
James G. Spaulding, Head, Department of Biological Sciences

Admission Requirements

1. A Master's Degree in one of the Sciences or Engineering disciplines, or permission of the Dean of the Graduate School
2. A least 1150 GRE score (V + Q)
3. Foreign students are required by the Graduate School to submit an official TOEFL score of 550 or higher before their application will be evaluated.

Ph.D. in Applied Computational Analysis and Modeling

The Ph.D. program in Applied Computational Analysis and Modeling is an interdisciplinary doctoral degree program administered by the Graduate School, with participation from the School of Science, College of Engineering (including Computer Science) and two departments in the College of Life Sciences. The School of Science consists of the Departments of Chemistry, Mathematics and Statistics, and Physics. The participating departments from the College of Life Sciences are the departments of Biological Sciences and Forestry.

The program is intended to produce professionals who have a firm grasp of the fundamentals of mathematical modeling, and have the expertise to implement, analyze and evaluate such models using state of the art computing environments and advanced visual data analysis techniques.

Students with Master's degrees in a branch of the Physical or Biological Sciences, Engineering, Computer Science or Mathematics are eligible for admission to the program. Students with baccalaureate degrees may be admitted in exceptional cases. Application forms are available from the Graduate School. Applicants will be required to submit undergraduate and graduate transcripts, current GRE scores and three letters of recommendation. A minimum score of 1150 (Verbal + Quantitative) on the GRE is required for admission.

Core Requirements, Coursework and Dissertation

At least 90 hours of graduate work will be required for the degree. The Core consists of 15 graduate hours of mathematics, 15 graduate hours of computer science, and 15 graduate hours of an area of application chosen from Chemistry, Physics, Life Sciences, or a participating Engineering discipline. In addition to the Core requirements, all students are required to take Statistics 549, Theory of Statistics, and Statistics 448, Theory of Probability. Substitutes can be made in exceptional cases with the permission of the Dean of the Graduate School and the student's committee. The remaining (at least) 39 hours of graduate work will consist of courses designated by the student's committee, including research hours for the dissertation.

The student need not write a dissertation in his/her area of application. The dissertation may be written in Mathematics, Computer Science, or possibly another area included in this program. The topic of the dissertation will be called the area of specialization.

Exam Structure, Candidacy and Time Limitation

The **qualifying exam** will consist of written and oral examinations in Mathematics and in Computer Science and an appropriate exam in the area of application. A student may take each of these examinations more than twice only with the permission of the Dean of the Graduate School. The qualifying exam in the area of application may consist of the master's degree in that area. A student is normally expected to take the qualifying exam in the first fall quarter following his/her completion of three quarters in the program.

Within 1 year of passing the qualifying exam, a student is normally expected to pass a **comprehensive exam** in his/her area of specialization (which may be Mathematics, Computer Science, the area of application or some other area included in this program). The comprehensive exam will include 2 hours of lectures on an area related to the student's proposed dissertation topic. A student must display an understanding of the principles and methods involved in his proposed area of specialization.

After the student has successfully passed the comprehensive examination, the student will be admitted to **candidacy**. The student must complete the dissertation and pass the **dissertation defense exam** within six years after being admitted to candidacy. The dissertation defense exam is administered by the student's committee. It will, in most cases, consist of an open public defense of the results of the dissertation. This final exam must be completed successfully at least two weeks prior to the date the degree is expected to be received.

At least sixty percent of all those serving on the Advisory Committee must recommend that the student has satisfactorily passed any of the examinations.

Student's Committee:

Each student will be assigned an **Interim Committee** in his/her first quarter in the program. This committee will consist of at least one member of the Department of Mathematics and Statistics, one member of the Department of Computer Science, and at least one other member, that member being from the student's principal department if such is declared. (The student's area of application must be declared within his/her first year in the program.)

Within one year of passing the qualifying exam, the Interim Committee will be replaced by a **Doctoral Committee**. Each student's Doctoral Committee shall consist of a minimum of four members of the Graduate Faculty, appointed by the Steering Committee (which is a University committee overseeing the program chaired by the Dean of the Graduate School) after consultation with the relevant departments. It will be composed of the major professor (once one is chosen), at least one representative from the Department of Mathematics and Statistics, at least one from the Department of Computer Science, and at least one from the principal department in which the student's application is located. Additional faculty can be added to the committee if it will benefit the student's program. This committee will work with the student to design suitable course work for the degree.

Graduate Programs
College of Administration and Business

Officers of Instruction

John T. Emery, Dean
R. Anthony Inman, Associate Dean for Graduate Affairs and Academic Research
Frank M. Busch, Assistant Dean for Undergraduate Affairs
James R. Michael, Director, Research Division
Thomas J. Phillips, Jr., Director, School of Professional Accountancy
Thomas L. Means, Head, Department of Business Analysis and Communication
Dwight C. Anderson, Head, Department of Economics and Finance
Gene Brown, Head, Department of Management and Marketing

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. The third division of the College, the Research Division, has an extensive and growing research program.

All graduate programs in business 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 adviser 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. Also, 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. 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.

Accreditation

The baccalaureate and masters programs in accounting and business are accredited by 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

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 assistantships are awarded to doctoral students. The salary paid for these part-time teaching assignments is normally $7,200.

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; conduct 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

The purpose of the Master of Business Administration degree is to offer an educational experience in business and management beyond the baccalaureate degree. The program is designed to provide breadth in exposure to the business disciplines. Also, the program is structured to allow a modest specialization in one of the business disciplines for those students who desire additional knowledge in a particular field.

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 201, 202 - Elementary Accounting I, II	6
Economics 215 - Fundamentals of Economics	3
Finance 318 - Business Finance	3
Management 311 - Organizational Behavior, Planning & Control	3
Management 333 - Operations Management	3
Marketing 300 - Marketing Principles & Policies	3
TOTAL	21

*For the student who plans to earn a specialty in accounting, Accounting 301, 303, 304, 305, 307, 308, 413, and 414.

Each student is presumed to have had college-level work in Quantitative Analysis 390 (calculus and linear algebra) or the equivalent and Quantitative Analysis 233 Business Statistics or the equivalent or take the courses to remove the deficiency.

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
Economics 510 - Managerial Economics	3
Finance 515 - Financial Management	3
Management 595 - Administrative Policy	3
Management 537 - Human Resources Management	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 Advisor. 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 advisers, 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 adviser.

Accounting: The 12 semester hours will include Accounting 507, 513, 517, 521.

Economics: The 12 elective hours will include 12 hours approved by the adviser.

Finance: The 12 semester hours will be selected from Finance 516, 517, 518, 525, or other finance courses approved by the adviser.

Management: The 12 semester hours will be selected from Management 544, 547, 571, 580, or other approved management electives.

Marketing: The 12 semester hours include Marketing 531, 533, 534 and one other elective approved by the adviser.

Quantitative Analysis: The 12 semester hours will include Quantitative Analysis 522 and 540, Management Information Systems 535, and Management 544 or other MIS/QA courses approved by the adviser.

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 requires professional judgment, 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 6101, Princeton, N.J. 08541-6101. Applications to take the GMAT may be obtained from the Counseling Center, The Graduate School, or Director of Graduate Studies office in the 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 provide graduate level education in accounting for individuals seeking rewarding careers in public accounting, industry, and government. 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 Admission 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
CAB Electives	6
Business Law 410	3
	30*

*Total must include at least 15 hours of 500-level accounting taken at Louisiana Tech.

**Accounting 505 cannot be taken as an elective.

Admission

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. 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 Admission Test. Students may enter the program any quarter, and each individual has a major adviser to help plan the program.

In addition to meeting the Common Body of Knowledge and business requirements, the applicant must have satisfactorily completed the following minimum accounting courses:

Accounting Systems	3
Intermediate Accounting	6
Income Tax	3
Managerial Cost Accounting	3
Advanced Accounting	3
Auditing	3
	21

In addition to the above requirements, the applicant must have completed a basic calculus course, and an advanced English writing course. Applicants with deficiencies in these areas must take either Math 222 or Quantitative Analysis 390, or either English 303 or 336.

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

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 knowledge to be developed in three subject fields chosen from the following fields: Accounting, Business Economics, Finance, Management, Marketing, and Quantitative Analysis. Also, research support courses in mathematics, statistics, computer languages, and other selected fields will be chosen according to the major field of the student. 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, Economics (normally two courses), Finance, Management (normally Business Policy) Marketing, Research Methods, and Statistics. 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 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 personal characteristics, research interest and capability, motivation and perseverance, and 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 6101, Princeton, N.J. 08541-6101. Request that your test score be sent to the Director of Graduate Studies in Business, College of

Administration and Business (code 6372), Louisiana Tech University, Ruston, LA 71272.

2. For an application for admission form write to: The Graduate School, Louisiana Tech University, P. O. Box 7923, Ruston, LA 71272. Return the completed 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 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 admissions 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 and Current Topics in Research Seminar, must be beyond the masters course or its 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, written and oral comprehensive examinations are administered. After all examinations are completed, the student will be admitted to candidacy status. 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. 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, P. O. Box 10318, Louisiana Tech University, Ruston, Louisiana 71272. Telephone (318) 257-4528.

Graduate Programs
College of Arts and Sciences

Officers of Instruction

John C. Trisler, Dean
Edward C. Jacobs, Associate Dean
Philip Castille, Head, Department of English and Interim Head, Department of Foreign Languages
Henry Stout, Interim Director, School of Architecture
Joseph W. Strother, Director, School of Art
Kathryn D. Robinson, Director, School of Performing Arts
Gene A. Crowder, Head, Department of Chemistry
Stephen Webre, Head, Department of History
Richard Greechie, Head, Department of Mathematics and Statistics
Richard L. Gibbs, 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, 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.

Division of Research

The purpose of a university is instruction, research, and service. Created to promote research by faculty and students, the Research Division is an integral part of the College. The main sources of funds that are available for research are obtained from Federal and State agencies, private foundations, and industry.

School of Architecture and School of Art

The Master of Fine Arts degree is offered by the School of Architecture and the School of Art 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.) - School of Art
(2) Graphic Design (G.D.) - School of Art
(3) Interior Design (I.D.) - School of Architecture
(4) Photography (Photo.). - School of Art

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 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 reactions, theoretical chemistry, synthesis and properties of novel inorganic compounds, environmental problems, separation techniques and trace analysis, conformational analysis by vibrational spectroscopy, enzyme kinetics, single crystal x-ray structure determination, and NMR spectroscopy.

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 of general chemistry, quantitative analysis, organic chemistry, physical chemistry, and physics; mathematics through calculus, both differential and integral; and inorganic chemistry.

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 just stated, 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.

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 doctoral degree.

Master of Arts with a Major in English

In addition to the Graduate School admission requirements, an applicant must have a bachelor's degree from an accredited college, including a minimum of 24 hours of English. At least 12 of these 24 hours must be junior or senior level coursework.

Candidates for the degree of Master of Arts with a major in English will follow one of two plans. Under Plan A the student 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. A student may take nine hours of advanced technical writing courses. For both options, students must successfully complete comprehensive exit examinations.

All English courses numbered 400 or above in the current catalog, unless otherwise designated, are acceptable for credit toward the degree of Master of Arts with a major in English.

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 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: This plan is recommended for the student who will continue graduate work beyond the M.A. The 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/her 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 may be taken outside the Department.

Department of Mathematics and Statistics

The Mathematics and Statistics Department offers in depth studies in Algebra, Analysis, Differential Equations, Probability and Statistics, and Applied Mathematics.

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, the student is to choose one 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, and Statistics 405.

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, high energy physics, computational physics, and

quantum gravity. 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.

Each candidate for the M.S. Degree must satisfy the conditions in one of the following two plans:

Plan A: 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.

Plan B: The candidate must earn thirty-six hours in this non-thesis plan as approved by his/her advisory committee. At least 27 hours must be in 500 level courses in the Department of Physics and nine hours in mathematics or other courses acceptable to the student's advisory committee.

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 over his/her graduate work.

Department of Speech

The graduate program in speech provides training and experience in the following areas: speech communication, speech-language pathology and audiology; theatre arts. The student may choose a program of study which allows concentration in any one of the above areas.

Admission Requirements to the Graduate Program in Speech Language Pathology and Audiology

The graduate program in Speech-Language Pathology and Audiology is accredited by the Educational Standards Board of the American Speech-Language Hearing Association and thus has the responsibility to assure that appropriate standards of educational quality are met or exceeded by the program and its students. Therefore, in addition to meeting the general admissions requirements of the Graduate School, a student seeking admission to the graduate program in Speech-Language Pathology and Audiology must be recommended for admission to the graduate program by the Department's Graduate Admissions Committee for Speech-Language Pathology and Audiology. The committee will be responsible for evaluating and ranking each applicant based on grade point averages, GRE scores, and letters of recommendation. Only those students who can demonstrate strong potential for completing all degree requirements will be accepted into the program.

Master of Arts in Speech

Applicants who do not have an undergraduate major in speech are expected to satisfy any speech course deficiencies 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/she 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 and the thesis 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 student's adviser and the Head of the Department of Speech.

All graduate students in speech (speech-language 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.

Note: All students in speech pathology and audiology are required to meet the academic and clinical experience requirements set by the American Speech-Language-Hearing Association for the Certificate of Clinical Competence in Speech-Language Pathology or Audiology prior to the completion of the master's degree.

Students should be aware that it is 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 and his/her own expenses when assigned to one of these sites.

Graduate Programs
College of Education

Officers of Instruction

Jerry W. Andrews, Dean
Jo Ann Dauzat, Associate Dean and Acting Head, Behavioral Sciences
Charles L. Foxworth, Director, Graduate Studies
Samuel V. Dauzat, Head, Curriculum, Instruction, and Leadership
Billy J. Talton, Head, Health and Physical Education

From its founding in 1894, one of the purposes of Louisiana Tech University has been the pre-service and in-service preparation of elementary and secondary teachers. Graduate teacher education programs are reflective of the activities of the faculty of the College of Education and the Louisiana Tech Teacher Education Council. Teacher education continues to maintain an important position in the university with programs for graduate preparation of school personnel. In addition to teacher preparation, the College of Education's mission also includes graduate preparation of other human services personnel.

The mission of the College of Education at Louisiana Tech University is to provide a broad range of undergraduate and graduate courses and human services degrees of a quality designed to meet the needs of students and employing agencies in the State, region, and nation. More specific objectives reflecting graduate education follow.

1. To provide experiences at the graduate level which are designed to prepare effective education and human service practitioners;
2. To promote the acquisition and use of knowledge based upon current scholarly research;
3. To critically explore proficiency in research methodologies and provide opportunities for application of research to a solution of practical professional problems;
4. To analyze, evaluate, and refine professional innovations and current practices;
5. To encourage the formation of appropriate attitudes, understandings, and skills toward exceptional students and individuals of all racial and ethnic backgrounds;
6. 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 University of Louisiana System, 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 the Accreditation of Teacher Education.

Division of Graduate Studies

The Division of Graduate Studies is administered by the Director of Graduate Studies, Education Graduate Committee, Graduate Faculty, department heads, and the Dean of the College. The purpose of the Graduate Studies Division is to encourage excellence in teaching, research, and service.

The Education Graduate Committee consists of three Graduate Faculty appointed by the Dean of the College from the departments of Curriculum, Instruction, and Leadership, Behavioral Sciences, and Health and Physical Education and one graduate student. Actions of the Education Graduate Committee are subject to approval of the Dean of the College and, when appropriate, the Teacher Education Council, the University Graduate Council, and the Dean of the Graduate School.

The Director of Graduate Studies administers the graduate programs in accordance with approved procedures. The Education Graduate Committee, chaired by the Director, establishes and reviews admission/retention policies, acts on new program or course proposals, reviews appeals for readmission, and approves Education Specialist degree applications.

A Review Committee, consisting of all Graduate Faculty, examines the credentials of Graduate Faculty applicants for evidence of continued scholarly productivity according to published criteria. Recommendations for membership on the Graduate Faculty are then made to the Deans of the College of Education and the Graduate School.

Degrees Conferred

The College of Education offers programs leading to the Master of Arts, the Master of Science, the Master of Education, the Specialist degree in Education, the Doctor of Education, and the Doctor of Philosophy degrees.

The Master's Degree Programs

Master's degree programs are offered in the departments of Behavioral Sciences, Health and Physical Education, and Curriculum, Instruction, and Leadership.

The Behavioral Sciences Department offers the Master of Arts degree in Educational Psychology, Elementary Counseling, Secondary Counseling, General Counseling, and Industrial/Organizational Psychology.

The Health and Physical Education Department offers the Master of Science degree in Health and Physical Education. Candidates may select one of the following emphases: Teacher Preparation, Adapted Physical Education, Exercise Science, and Sports Science. The programs in Teacher Preparation and Adapted Physical Education require teacher certification for admission to these programs.

The Curriculum, Instruction, and Leadership Department offers the Master of Science in Curriculum and Instruction. On May 23, 1990, the Louisiana Board of Regents consolidated all graduate secondary programs into a single MA/MS degree program in Secondary Education. In

September 1994, all Elementary, Secondary, and Reading programs were consolidated into the M.S. degree in Curriculum and Instruction.

The Master of Education (M.Ed.) Fifth-Year Program became effective for secondary education in the Fall Quarter 1990. Elementary Education and Vocational Agriculture were added in 1994. These programs are designed for liberal arts and sciences graduates who seek initial certification in a teaching area and a master's degree. Certification areas for the M.Ed. degree include: Art Education, Business Education, Elementary Education, English Education, Foreign Languages Education, Health and Physical Education, Mathematics Education, Music Education, Science Education, Social Studies Education, and Speech Education.

Graduate students in the College of Education, along with graduate students in the other academic colleges, are eligible to 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 should submit a Graduate Record Examination (GRE-General) score before or at the time of application. For conditional admission, students must have a GPA of 2.25 on all hours pursued or 2.50 on the last 60 hours. For unconditional admission, students must have a GPA of 2.50 on all hours pursued or 2.75 on the last 60 hours.

The admissions formula includes both the grade point average and the GRE verbal (V) plus quantitative (Q) scores. The formula is GPA X 200 plus GRE V plus Q. Conditional admission is granted to those who have 1200 points while unconditional admission is granted to those with 1300 points or more.

Up to ten percent of the total number of students admitted into a graduate degree program during any quarter who have not met these requirements (because of GRE scores) may be admitted on a conditional basis. The conditional admission status may be removed through successful completion of nine (9) semester hours of graduate courses, a 3.00 grade point average, and through successful completion of the GRE. A letter of appeal must be addressed to the Director of Graduate Studies at least one week prior to registration. The Education Graduate Committee will review the appeal. The Director will promptly notify the applicant of the Committee's decision.

New students who have not taken the GRE will be admitted to Graduate "Unclassified" if their grade point averages are satisfactory. Unclassified students may take a maximum of nine semester hours toward their degree. GRE scores must be submitted during the first quarter of enrollment or future registration will be denied.

A maximum of nine (9) semester hours earned at Louisiana Tech in a non-degree status and prior to admission to the Master's degree program may be included in the 33-36 semester hours of required work.

Please note that graduate credit cannot be awarded for 300 level courses.

Curriculum and Instruction

The MA/MS degree programs in Elementary Education, Secondary Education and Reading were consolidated into a new Master of Science degree program in Curriculum and Instruction. This change was effective in the Fall Quarter 1994. Students enrolled in these programs prior to the Fall 1994 may follow and complete their approved Plan of Study (33 hours) in Elementary, Secondary, or Reading. However, the diploma will read M. S. in Curriculum and Instruction.

The candidate seeking a Master of Science degree in Curriculum and Instruction will be required to earn a minimum of 36 semester hours which may include 6 hours credit for a thesis. An approved Plan of Study must be submitted during the first quarter of enrollment.

Required core courses for the degree include: Education 541, Introduction to Graduate Study and Research; Education 572, Education Foundations and Public Policy; Education 521, Assessment of Students and Programs; Education 522, Instructional Theory and Practice; Education 526, Curriculum Development. The student may choose one of the following: Education 575, Practicum; Education 471, Classroom Management; Education 524, Supervision of Student Teachers; an education elective; or Education 551, Research and Thesis (6 hours).

To complete the 36 hour program, students may choose a cognate of 15 hours (12 hour concentration from a designated area plus a three hour elective) which may lead to an additional area of certification. Candidates may choose from the areas of adult education, early childhood, computer literacy, reading, middle grades, special education, fifteen hours in a subject area for secondary majors, elementary or secondary principalship, and/or supervisor of instruction. Additional information regarding the cognate areas may be obtained from the Head of Curriculum, Instruction, and Leadership or from the Director of Graduate Studies.

Before or during the candidate's first quarter of enrollment, an acceptable GRE score is required. The formula for admission is UGPA x 200 + GRE V+Q. A total of 1200 points is needed for conditional admission and a total of 1300 points is needed for unconditional admission. Students without GRE scores will be placed in "unclassified" for one quarter. Only nine semester hours will apply toward this degree while in this category.

Advisors will assist candidates in developing a Plan of Study during the first quarter of enrollment. Nine hours may be transferred toward this degree with the approval of your advisor, department head, and Director of Graduate Studies. No deviation can be made from the Plan of Study without prior permission. A comprehensive examination must be passed during the last quarter of enrollment in the student's program.

The M.Ed. program in secondary education requires the successful completion of the following courses (36 semester hours): Education 541, Introduction to Graduate Studies and Research; Education 572, Education

Foundation and Public Policy; Education 573, Principles and Curriculum; Psychology 507, Learning and Development; Education 528, Evaluating Pupil Growth; Education 574, Teaching Methods for Effective Secondary School Instruction; Education 575, Practicum in Education; Education 576, Internship in Education; and six (6) semester hours in the cognate area.

The MEd program in Elementary Education requires the successful completion of the following courses (36 semester hours): Education 541, Introduction to Graduate Studies and Research; Education 572, Education Foundations and Public Policy; Education 573, School Principles and Curriculum; Psychology 507, Learning and Development; Education 528, Evaluating Pupil Growth; Education 567, Teaching Methods for Language Arts; Education 568, Teaching Methods for Effective Instruction of Reading; Education 569, Teaching Methods for Effective Instruction of Math and Educational Technology; Education 577, Teaching Methods for Effective Instruction of Science and Social Studies; and Education 576, Internship. A research paper will be proposed in Education 541, developed in Education 575, and completed in Education 576. Finally, the Professional Knowledge and Area Specialty components of the NTE and a comprehensive examination must be successfully completed before the candidate is recommended for the M.Ed. and teacher certification.

Health and Physical Education

The candidate seeking a Master of Science degree in Health and Physical Education will be required to earn 36 semester hours which may include 6 semester hours for a thesis. The program in Health and Physical Education offers opportunities for various career interests providing concentration areas in Teacher Preparation, Adapted Physical Education, Sports Science, and Exercise Science. The Teacher Preparation and Adapted Physical Education concentration areas require a valid teacher's certificate in physical education issued by the Louisiana State Department of Education or its equivalent. The Sports Science and Exercise Science concentration areas do not require teacher certification for admission to the program.

The Teacher Preparation concentration is designed for individuals interested in teaching physical education at the elementary and/or secondary level. The Teacher Preparation concentration requires 15 hours in Health and Physical Education classes, 9 hours of Health and Physical Education electives, 6 required hours in professional education, and 6 elective hours in education.

The Adapted Physical Education concentration is provided for individuals interested in teaching Adapted Physical Education in a school setting. Twenty-one hours are required in Health and Physical Education, 6 hours are required in professional education, and 9 elective hours may be chosen from related areas within the University. Upon completion of the degree with an Adapted concentration, the candidate will be certified to teach Adapted Physical Education in Louisiana.

The Exercise Science concentration is available for individuals interested in Exercise Physiology. Twelve hours of Health and Physical Education classes are required with 9 elective hours in Health and Physical Education, 3 required hours in professional education, and 9 elective hours from related fields from any college within the University.

The Sports Science concentration is provided for people interested in athletic coaching with a focus on the acquisition and performance of psychomotor skills in sports. This concentration requires 15 hours in Health and Physical Education, 9 hours of Health and Physical Education electives, 6 required hours in professional education, and 6 elective hours from related areas within the University.

Counseling

The Counseling Programs are designed to prepare counselors for counseling and human service positions in educational institutions and other agencies. The program is designed to provide all enrollees with basic preparation in counseling psychology with various elective options offered to prepare counselors for particular institutional settings, e.g., educational, mental health, and community service agencies.

Three programs are offered in this field: elementary school counseling, secondary school counseling, and general counseling. Certification by the State Department of Education as an elementary or secondary school counselor requires permanent teacher certification. The general counseling program does not require a permanent teacher's certificate for admission.

The Elementary Counseling program consists of the following required courses: Psychology 408, 541, 542, Counseling 500, 505, 508, 515, 516, 518, 530, and Special Education 504. Required courses in Secondary Counseling are: Psychology 541, 542, Counseling 500, 505, 508, 513, 514, 516, 518, 530, and Special Education 504.

Required courses in General Counseling are: Psychology 541, 542, Counseling 500, 505, 508, 516, 518, and 530. The required 9 additional hours will be selected from psychology and counseling areas with the approval of the adviser, Area Coordinator, and Director of Graduate Studies.

Students interested in writing a thesis should discuss this with their adviser prior to their enrollment in graduate courses.

Special Education

(This program is in process of converting to the M. A. degree in Educational Psychology. For information, contact the Behavioral Sciences Department Head.)

Industrial/Organizational Psychology

Persons trained in Industrial/Organizational Psychology frequently find employment in private and public organizations, consulting firms, and government. Many positions in these settings require expertise in human resource management and organizational psychology.

The candidate seeking a Master of Arts degree with a major in Industrial/Organizational Psychology will be required to earn a minimum of 33 semester hours.

The candidate will be required to take these courses: Psychology 541, 542, 513, 516, 517, 518, 523, 524. The remaining 9 hours will be selected from Counseling, Psychology, and Management courses with the approval of his/her advisory committee. No more than 9 semester

hours may be taken in management (to be selected from Management 447, 470, 478, or 537; Management 472, 539, 547; Management 571; and Economics 418 or Management 419). This program requires at least 18 hours credit from academic and/or professional courses designed exclusively for graduate credit.

Specialist in Education Program

The Education Specialist degree is an advanced graduate degree between the Master's and Doctor's degrees. The purposes of the Education Specialist degrees in Counseling and Reading are to provide higher levels of study than are available on the Master's level and to build upon the students' backgrounds in their respective areas of specialization.

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 1400 points when applying the following formula: Graduate grade point average X 200 plus GRE Verbal and Quantitative).
3. Be approved by the Education Graduate Committee.
4. Demonstrate proficiency in research methodology.

Plan of Study

The student's major adviser 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. Candidates for a degree in counseling must provide evidence of college transcripts or examinations 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. 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; Counseling 528, Advanced Addiction Counseling; Psychology; Education 561, Research Design and Analysis; and Education 580, Specialist Research and Thesis. Education 580 may be taken for 3 semester hours (research project) or 6 semester hours (thesis). An additional 6 to 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 the plan of study: Education 451, Software Application in the Teaching of Reading; Education 502, Problems in Teaching Language Arts in the Elementary School; Education 537, Seminar, Problems in Reading; Education 538, Supervision and Curriculum Development in Reading; Education 539, Advanced Laboratory Practicum in Reading; Education 542, Statistical Methods in Education; Education 561, Research Design and Analysis; Education 564, The Reading Process; and Education 580, Specialist Research and Thesis. Education 580 may be taken for 3 semester hours (research project) or 6 semester hours (thesis). Three semester hours must be selected from the following courses: English 423, English Words and Idioms; Education 491, Reading in Adult Education; Education 528, Evaluating Pupil Growth; Family & Child Study 540, Parent Involvement; and Education 565, Differentiated Supervision.

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. Students who have been dropped from the Specialist program are not eligible for readmission.

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.) Students must also have a 3.0 grade point average and an acceptable 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.

The Doctor of Philosophy Degree in Counseling Psychology

The Department of Behavioral Sciences offers the Ph.D. degree in Counseling Psychology. The program is based on the scientist-practitioner model of training which emphasizes the interrelation of psychological theory, research, and practice. Counseling psychology involves the understanding of human behavior in a variety of contexts across the life cycle and implementation of a broad range of interventions designed to facilitate maximal adjustment among those seeking help.

Admission

Application for admission requires a completed Graduate School Application form, a minimal composite (verbal + quantitative) Graduate Record Exam Score of 1000, official transcripts of all college or university work, and other requisites as may be specified by the Department, such as, but not limited to interviews or letters of intent, philosophy, and professional goals.

Meeting minimal requirements does not guarantee admission into the program. In addition to demonstrating evidence of academic competence and capability, those persons selected for the program will be applicants who possess an uncommon personal maturity and interpersonal confidence, an unusual curiosity about their own and others functioning, and whose personal and professional goals most clearly coincide with the aims and interests of the program and its faculty.

Degree Requirements

1. 96 semester hours of approved coursework beyond the baccalaureate degree.
2. Demonstrated proficiency in a foreign language or an approved research tool.
3. Production of an acceptable research project (except for advanced graduates who have produced a masters thesis or Ed.S. research project).
4. Passing a qualifying examination during the second quarter of enrollment (if admitted to advanced standing with at least a masters degree).
5. Passing a comprehensive examination in the major field and two minor specialty areas at the completion of doctoral coursework.
6. Production and successful defense of an acceptable dissertation.

Advisory Committee

At matriculation the student will be appointed a temporary advisor by the College of Education Graduate Director. By the end of the first quarter of enrollment the student must formally decide upon a permanent advisor, usually also the dissertation director, and an advisory committee who will assist in creating the plan of study.

Time Limitation

The doctoral degree must be completed within 5 consecutive calendar years after passing the comprehensive examination.

Description of Courses

Counseling and Psychology 500 and 600 level courses are open to graduate students only, with 600 level courses reserved exclusively to doctoral enrollment.

Louisiana Education Consortium Doctor of Education Degree

The Doctor of Education degree in Curriculum and Instruction or Educational Leadership is offered through the cooperative efforts of Grambling State University, Louisiana Tech University, and Northeast Louisiana University and coordinated through the Louisiana Education Consortium Governing Board. All consortium institutions will offer foundation courses and other graduate courses required in the Ed.D. program in Curriculum and Instruction or Educational Leadership based upon faculty expertise and other institutional resources. The Doctor of Education degree in Curriculum and Instruction and in Educational Leadership will be awarded by the institution to which the student has been admitted for doctoral study with coursework being completed on all three campuses in order to provide diverse academic experiences. A unique strength of the Louisiana Education Consortium is that the three institutions will strategically pool faculty, equipment and technology.

The programs are designed for K-12 personnel, including teachers and administrators. The primary goal of the doctoral programs is the preparation of practitioner-scholars for roles in elementary, middle, and secondary school settings.

Admission Requirements for the Doctor of Education Degree

Student admission in Regular status to the Doctoral program is based upon the following criteria:

*The applicant must hold a master's degree from a regionally accredited institution in an area related to his/her proposed program of study,

*The applicant must have a minimum cumulative undergraduate grade point average of at least 2.75 and a minimum cumulative graduate grade point average of at least 3.25.

*The applicant must have completed the Graduate Record Examination (GRE) with a minimum score of 1000 (Verbal and Quantitative) or 1500 (Verbal, Quantitative and Analytical).

*The applicant must have teaching and or administrative experience in a kindergarten, elementary, middle or secondary school or similar educational setting. A valid teaching certificate or equivalent coursework is required for admission.

*The applicant must submit three letters of recommendation from individuals who are familiar with his/her character, teaching/administrative

performance and ability to perform academically on the doctoral level.

*Applicants should complete their admission portfolios by inclusion of a personal resume and samples of their writing, particularly writing that has been published.

*Finalists in the application process may be required to have a personal interview with the doctoral admission committee on the campus from which the student wishes to receive a degree.

*In addition to demonstrating evidence of academic competence and capability, those persons selected each year for this program will be applicants who are already considered leaders in their educative fields and who have clearly articulated their educational commitment to public schools. It is expected that the application process will be extremely competitive.

Any applicant meeting all other requirements for admission except minimum GPA or GRE scores may appeal to the Consortium Governing Board for admission in conditional status. The Board may admit to individual campuses, under these conditions, up to ten percent of the total number of students admitted during any semester/quarter. No student shall be admitted when the student's GRE test performance is in the lowest quartile among students taking the test on the same date.

Eligibility to Remain in the Doctor of Education Degree Program.

Students enrolled in the doctoral program must maintain a minimum grade point average of 3.0 during each term of enrollment. Failure of the student to maintain an overall graduate grade point average of 3.0 or receipt of any grade lower than C or receipt of more than six semester hours of C in graduate coursework, may result in termination from the program. The student must successfully complete all coursework, experiential and examination requirements with a minimum grade point average of 3.25.

A graduate student who is denied admission to or further continuance in the Doctor of Education degree program may appeal for admission or readmission. All appeals must be approved by the appropriate committee on the student's campus of enrollment and by the Consortium Governing Board.

Program of Study for the Doctor of Education Degree

Coursework. The approved degree program for each doctoral student must include a minimum of sixty hours beyond the master's degree of which at least one half must be in coursework open only to doctoral students. Individuals possessing the Education Specialist Degree in the area in which they are pursuing the doctorate must complete a minimum of 45 additional semester hours of credit for the doctorate.

The consortium program for the Doctor of Education degree consists of the following components:

I. Education Foundations/Research/ Statistics	12 semester hours
II. Core Courses for Specific Degree	18 semester hours
III.Cognate	9 semester hours
IV. Elective	3 semester hours
V. Internship	6 semester hours
VI. Dissertation/Research Design Seminar	12 semester hours
Minimum Total Hours	60 semester hours

Initial campus enrollment may not be changed during the student's matriculation in the doctoral program. Each student pursuing the doctorate through the Louisiana Education Consortium will be required to enroll in classes on the campus of each participating institution. A minimum of fifteen semester hours of the minimum sixty hours required for the doctorate must be taken on the campuses of participating institutions other than the host campus. At least two courses must be taken on each campus.

Preliminary Examination. Upon completion of a minimum of twelve semester hours and not more than 24 semester hours of doctoral coursework, each student will be required to take a Preliminary Examination. The Preliminary Examination is designed to measure student competence in 1) educational foundations, 2) research, 3)statistics and 4) general professional knowledge. This common six-hour written examination will be constructed by appropriate consortium faculty. Following the evaluation of the written Preliminary Examination, a one-hour oral examination will be conducted by the student's advisory committee. Student performance on both components of this examination will form the basis for any revisions of the program of study. Failure to pass this examination after two attempts will result in termination of the student from the program.

Comprehensive Examination. The second doctoral examination, the Comprehensive Examination, is administered upon completion of all program coursework. This examination consists of a six-hour written component and a two-hour oral examination. Failure to complete this examination satisfactorily will result in a revision of the program of study and an additional examination. Failure to pass this examination after two attempts will result in termination of the student from the program. After satisfactory completion of the Comprehensive Examination, the student is admitted to candidacy.

Internship. The Louisiana Education Consortium is unique in preparing students to become practitioner-scholars. These individuals will apply the knowledge acquired in program components to practical settings. To achieve this goal, six semester hours of internship will be required. Students are eligible to apply for internship only after successful completion of the Comprehensive Examination. The internship must be completed at a site other than the student's place of employment. The student's Doctoral Committee will assist the student in internship placement.

Dissertation. In addition to the research requirements associated with each course, all doctoral students are required to complete a dissertation. The dissertation should

be directed toward the degree specialization and must include field-based research. Students are encouraged to pursue the identification of a dissertation topic and the review of the literature prior to the Comprehensive Examination. The dissertation prospectus must be approved by the student's Doctoral Committee after the Comprehensive Examination has been successfully completed. Other research requirements, for example, the use of human subjects, must be approved on the campus on which the student is enrolled.

The student will be expected to enroll for a minimum of three semester hours of dissertation credit for each semester/quarter in which the student is working with faculty on the dissertation. The student must be enrolled in a minimum of three semester hours of dissertation credit during the semester/quarter in which the degree is conferred. No less than nine semester hours of credit shall be earned for successful completion of the dissertation.

Following completion of the dissertation, the student will be expected to defend this scholarly work during a Dissertation Defense.

Doctoral Committee. The student's Doctoral Committee shall consist of the Major Professor and a minimum of three additional faculty. The Major Professor is the committee chair and must be selected from the institution in which the student is enrolled. Each institution shall have at least one representative on each doctoral committee. Each committee will include a professor from the cognate area. Additional committee members may be added to address specific student program or research needs. The student's Doctoral Committee is selected by the student, appointed by the appropriate administrator on each campus and approved by the Consortium Board.

Residence Requirements for the Doctor of Education Degree

Students pursuing the Doctor of Education degree will be required to spend at least two consecutive semesters/quarters in residence on the campus from which the degree is to be awarded. Students must be enrolled as full-time students during the time in which the residence requirement is being met.

Transfer of Credit for the Doctor of Education Degree

A maximum of nine semester hours of graduate credit appropriate to the student's degree program may be transferred from other institutions offering regionally accredited graduate programs if earned in residence at that institution. No credits for which a grade of less than B has been earned may be transferred. Neither internship nor dissertation credit may be transferred into consortium programs.

Time Limit for the Doctor of Education Degree

All coursework, internships and the dissertation must be completed within a seven year time period from date of admission to the program. Courses transferred into the doctoral program must also be within the seven year time limit for completion. Any appeal for extension must be approved by the institution's Graduate Council and the Consortium Governing Board.

Policies and Procedures

Policies and procedures for the Louisiana Education Consortium Ed.D. are detailed in the Louisiana Education Consortium Handbook.

Graduate Programs
College of Engineering

Officers of Instruction

Barry A. Benedict, Dean
James D. Nelson, Associate Dean, Academic Affairs
Paul N. Hale, Jr., Head, Department of Biomedical Engineering
Ron Thompson, Interim Head, Department of Chemical Engineering
Leslie K. Guice, Head, Department of Civil Engineering
Barry Kurtz, Head, Department of Computer Science
Louis E. Roemer, Head, Department of Electrical Engineering
E. Eugene Callens, Interim Head, Department of Mechanical and Industrial Engineering

The College of Engineering offers the Master of Science degree with majors (specializations) available in the departments of Engineering, in Computer Science and in the non-engineering Operations Research Option in Industrial Engineering. An interdisciplinary Doctor of Engineering is offered with emphasis on the practice of engineering at a high level of knowledge. A Doctor of Philosophy degree is offered in the Department of Biomedical Engineering.

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 $7,000 at the master's level and teaching assistantships of $9,000 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 Associate Dean for Academic Affairs. University assistantships are also open to engineering graduate students. Inquiries concerning these assistantships should be directed to either the Associate Dean for Academic Affairs or to the Graduate School of the University.

For a student on a full time (20 hours of work per week) assistantship, the required load is 9 semester hours of graduate credit per quarter.

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, simulations, structures, systems engineering, thermodynamics, transportation, transport phenomena, water resources, rehabilitation engineering, systems physiology, and artificial intelligence and robotics applications.

The Master of Science Degree

Thesis Option

In order to pursue the Master of Science, a student must be admitted as a graduate student in one of the departments of engineering or in the masters program in Computer Science 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 Thesis. A minimum of 15 hours must be earned in courses open only to graduate students.

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 a thesis student must complete 30 semester hours, including three core courses, two two-course sequences, a 500-level elective, and 6 semester hours of thesis. Non-thesis students must complete 36 semester hours, including three core courses, three two-course sequences, two 500-level electives, and 3 semester

hours of practicum. There will be a comprehensive examination of coursework after the first year of graduate study is competed.

In the non-engineering Operations Research 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.

Master of Science in Manufacturing Systems Engineering

An interdisciplinary degree in Manufacturing Systems Engineering is administered by the College of Engineering. Students can pursue the degree on either a thesis or non-thesis basis. Courses are taken from three primary areas - manufacturing process control, integrated design and manufacturing, and integration of manufacturing operations. Additionally, courses can be taken from three supplemental areas - business and mathematics, statistics, and computers. Interested students are encouraged to apply.

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 Associate Dean for Academic Affairs, 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 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.

Individual departments may, upon approval by the Dean of the College of Engineering, impose additional requirements, such as written comprehensive exams.

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 Biomedical, Chemical, Civil, Electrical, Industrial or Mechanical Engineering, a baccalaureate degree with a major in the same engineering discipline from an ABET accredited program 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, synthesis, and design.

Students entering the masters program in Computer Science will be expected to have a background equivalent to the bachelors program in Computer Science at Louisiana Tech. Any core Computer Science courses in the B. S. program at Tech will be considered deficiency courses for masters students if they have not taken equivalent courses in their bachelors programs. A student may challenge a deficiency course by successfully completing a comprehensive examination and, as appropriate, programming projects. Graduate students will be required to maintain a 3.0 grade point average in all deficiency courses; failure to do so will result in transfer to post baccalaureate status.

For students wishing to apply for the non-engineering Operations Research 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. Applicants with the appropriate degree but without the specific minima will be required to remove these deficiencies.

In addition to the general University admission requirements, a student must also meet the following requirements for admission to a Master of Science program in the College of Engineering. These are minimum requirements and meeting them does not guarantee admission.

1. All students applying for any graduate program in the College of Engineering are required to submit a GRE score.
2. If a student has a GRE score of 1070 or higher (Verbal + Quantitative) or an overall GPA of 3.00 or higher and a GPA of 3.00 or higher on the last 60 hours of undergraduate course work he/she may be considered for unconditional admission to the Master of Science program.
3. If a student has an overall GPA between 2.50 and 3.00 or a GPA between 2.50 and 3.00 on the last 60 hours of undergraduate course work, he/she may be considered for conditional admission to the Master of Science program.
4. Conditional and unconditional admission are explained under the Graduate School section of this bulletin.

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.

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 course work 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.
5. Additional graduate course work 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 course work 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

The Doctor of Philosophy program in Biomedical Engineering is designed to:

strengthen the foundation is engineering, mathematics, and biomedical engineering principles by advanced courses in these areas,

provide depth in a specific area of concentration within biomedical engineering,

provide the skills and experience necessary to fully utilize the resources available in the field, and

prepare graduates to conduct independent study and research.

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 course work as a foundation, a sequence of examinations, and the production of a dissertation.

The program consists of a minimum of 60 hours credit in formal course work, 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 course work (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 651, Research and Dissertation. No foreign language is required for the Ph.D. in Biomedical Engineering. English is the language of communication and both oral and written skills are important.

The schedule of examinations consists of a comprehensive examination at or near the completion of formal course work, 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.

Admission to the Doctoral Programs

Prior to entering the Doctor of Engineering program a student must have a degree in an acceptable 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 GRE scores and the names and complete address of three academic and professional references who will be contacted directly by the College of Engineering. A GRE score of 1170 or higher (Verbal + Quantitative) or a graduate GPA of 3.25 or higher is required if the applicant has an M. S. degree. A GRE score of 1270 or higher (Verbal + Quantitative) is required if the applicant is entering the program with a B.S. degree only. These requirements are minimum and do not guarantee admission to a doctoral program.

Pending receipt of the GRE scores and letters of

reference, the applicant may be considered for admission as a non-degree, unclassified student. The applicant will be granted either an unconditional admission or will be rejected after review of all application materials.

Description of Courses

The 400 level courses are for undergraduate and graduate registration; the 500 and 600 level courses are for graduate student registration only. Credit for Research and Dissertation is listed as Engineering 651 rather than as a departmental listing.

Graduate Programs
College of Human Ecology

Officers of Instruction

Jeanne M. Gilley, Dean
Shirley P. Reagan, 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 nutrition and dietetics, human ecology education, early childhood education, family studies, child development, consumer affairs, and the broad general area of human ecology. The graduate human ecology curricula leading to Master of Science degrees were established to meet this demand. Students select the program best suited to individual professional objectives. Graduate students have the opportunity to enhance their knowledge in the rapidly changing field of human ecology and to develop an appreciation of the current research in their chosen areas of study.

Accreditation

Graduate programs support undergraduate degree programs in human ecology education which 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 human ecology teacher preparation programs are maintained through the joint activities of the faculty of the College of Human Ecology and the Louisiana Tech University Teacher Education Council.

The College of Human Ecology is an official member of the AACFS Agency Member Unit. The undergraduate programs are accredited by the Council for Accreditation of the American Association of Family and Consumer Sciences and approved by the American Dietetic Association.

The Dietetic Internship is accredited by the American Dietetic Association. Graduates of an approved Didactic Program may apply for admission to the Dietetic Internship. This program fulfills the Performance Requirements for eligibility to take the examination to be a Registered Dietitian.

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 human ecology or in a related field. The undergraduate grade point average and Graduate Record Examination scores are used to make admission decisions. For more information, contact the Director of Graduate Studies in the College of Human Ecology.

Students whose performance in oral and written communication is 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 human ecology courses where deficiencies exist.

Financial Support

A limited number of university wide graduate assistantships are available to human ecology graduate students. Application is made directly to the Director of Graduate Studies, College of Human Ecology.

Financial support awarded by the College of Human Ecology includes graduate assistantships and scholarships. The number and amount of these awards are dependent upon the availability of funds. Application for a graduate human ecology assistantship or scholarship is made to the Director of Graduate Studies, College of Human Ecology.

The Helen Graham Loan fund is available for up to $500.00 on a low interest rate basis.

Research

Faculty members are well qualified to supervise research problems within the limits of university facilities in fields of Food and Nutrition; Family and Consumer Sciences Education; Early Childhood Education, Child Development and Family Studies; and Consumer Affairs.

Requirements for Graduation for the Master of Science Degree in the College of Human Ecology

1. a. Thirty-six semester hours or b. Thirty semester hours which include six hours of credit in Human Ecology 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 Human Ecology 504, Methodology in Human Ecology Research; Human Ecology 546, Microcomputer Applications; and Statistics 402, Introduction to Statistical Analysis.
5. Completion of a thesis or multi-quarter independent study.

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 Human Ecology. Students should contact the Office of the Director of Graduate Studies for information about the handbook.

Master of Science Degrees:

The College of Human Ecology has been given the authority to grant Master of Science degrees in Human Ecology Education and Nutrition and Dietetics. The Master of Science in Nutrition and Dietetics is awarded only to individuals who have met the requirements to take the examination to be a Registered Dietitian. Both programs are offered on the Ruston campus and at Tech Bossier. Within these degrees, the student should select an area of concentration.

The areas that have been defined include the following:

Human Ecology Education

Consumer Affairs Concentration
Early Childhood Administration Concentration
Early Childhood Education Concentration
Family Life Education Concentration
Human Development and Family Studies Concentration
Family and Consumer Sciences Education Concentration

Nutrition and Dietetics

Clinical Dietetics Concentration
Community Dietetics Concentration

Dietetic Internship

The Dietetic Internship is a three quarter program providing the Performance Requirements to take the Registered Dietitian examination.

The program is implemented through facilities in Shreveport, Monroe, and Alexandria. Students are assigned to facilities in one city to minimize the amount of travel required. Classes are held on the Ruston campus one day each week for the duration of the program.

The Dietetic Internship students enroll in graduate school and receive both undergraduate and graduate credit while completing the program. Students are encouraged to complete the Master of Science although receipt of the Dietetic Internship verification statement does not require completion.

The Dietetic Internship has developmental accreditation by the Commission on Accreditation/Approval for Dietetic Education of the American Dietetic Association (216 West Jackson Boulevard, Chicago, IL 60606), a specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation and the United States Department of Education.

Graduate Programs
College of Life Sciences

Officers of Instruction

Jeanne M. Gilley, Interim Dean
James D. Liberatos, Director,
Division of Research and Graduate Studies
James G. Spaulding, Head, Department of Biological Sciences

The demand for trained persons in the biological sciences is continually increasing in many areas of public service and private industry. A graduate program to encourage and to nurture expanded investigation in specific areas of interest has developed to meet this demand. The graduate program in the Department of Biological Sciences prepares students to accept the challenges of global problems and to develop successful technological solutions based on the premise of the scientific method and a scientific approach to research.

The College of Life Sciences offers programs of study leading to the degree Master of Science in Biological Sciences. Areas of concentration can be selected from topics in botany, microbiology, wildlife biology, or zoology. One can pursue a thesis option (completion of 30 semester hours required) or a non-thesis option (completion of 36 semester hours required).

Division of Research

The Division of Life Sciences Research is an integral part of the training and hands-on experience of the Graduate Program. The primary purpose of the Division is to stimulate, support, and facilitate the activities related to all areas of research by faculty and graduate students.

The Division of Research is the administrative office for coordination of all phases of research conducted by the various units within the College of Life Sciences. Policies and procedures governing the administration of the Division are formulated and implemented by the College Research Committee. This committee is chaired by the Director of Research and is composed of faculty representing each academic area 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.

Admission

Applicants for admission to the graduate program in the College of Life Sciences must meet the minimum admission requirements of the Graduate School. Unconditional admission requires those individuals to possess an undergraduate GPA of 3.0; applicants with a GPA between 2.50 and 3.0 will be considered for Conditional Admission. In addition applicants are required to submit scores on the General Tests of the Graduate Record Examination (GRE) and scores on the Subject Test in Biology.

A candidate for the Master of Science in Biological Sciences must meet the following undergraduate requirements: a bachelor's degree with not less than 30 semester hours in biology, chemistry through organic with laboratories, and mathematics through college algebra.

Each graduate student will select a Graduate Advisory Committee for the purpose of counseling and guidance through the graduate tenure. All undergraduate course work submitted must be evaluated for acceptance by the student's Graduate Advisory Committee. Graduate students who have not completed the minimum background for their chosen specialty are expected to satisfy these requirements in the initial stage of their graduate program.

Program of Study

Thesis Option

The program of study for the degree of Master of Science in Biological Sciences in the Thesis Option consists of a minimum of 30 semester hours of graduate credit of which at least 15 hours must be taken in 500-level courses. Completion of two semester hours in Life Sciences Seminar (LS509) is a requirement for the degree. A maximum of six semester hours of credit for Life Sciences Special Problems (LS 530) combined with Life Sciences Internship (LS 540 and LS 541) can be used toward the thesis degree. Enrollment in Life Sciences Research and Thesis (LS 551) is required each quarter the student is in full-time residence, with a maximum of 6 semester hours granted as partial fulfillment of the degree plan. The student will pursue original research in their specialized field of interest supervised by a thesis adviser and approved by the student's Graduate Advisory Committee. Completion of the thesis includes an oral defense of the thesis and oral examination by the student's Graduate Advisory Committee.

Non-Thesis Option

The program of study for the degree of Master of Science in Biological Sciences in the Non-Thesis Option consists of a minimum of 36 semester hours of graduate credit of which at least 15 hours must be taken in 500-level courses. Completion of two semester hours in Life Sciences Seminar (LS 509) is a requirement for the degree. Students who do not write a thesis must demonstrate acceptable proficiency in research techniques and reporting by earning a minimum of three semester hours in Life Sciences Special Problems (LS 530). No more than six semester hours of credit for Life Sciences Special Problems (LS 530) combined with Life Sciences Internship (LS 540 and LS 541) can be used toward a graduate degree. Non-thesis graduate students are required to pass comprehensive written and oral examinations conducted by the student's Graduate Advisory Committee.

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 and 600 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- and 600-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 (75 minute periods); third, credit value in semester hours; fourth, the total semester hours credit which can be earned in the courses (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.

Certain 300- and 400-level courses may be taken for graduate credit. An asterisk (*) at the end of the course description indicates this approval.

The following courses are presently graded on a S/U basis:

All "00" sections (credit exams); Education 415, 416, 420, 580; HPE 100; Human Ecology 127, 467, 498C, 498F, 498I; 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

101: Accounting for Non-Business Majors. 0-3-3. Not open to four-year business degree majors. This course is designed to provide non-business majors an overview of the discipline of accounting and covers topics in financial and managerial accounting.

201-202: Elementary Accounting. 0-3-3 each. Basic understanding of concepts and methods of accounting and the significance of accounting information for managerial decision making. F,W,Sp.

210: Administrative Accounting. 0-3-3. For non-accounting majors. Preq., Accounting 201. This course considers the use of accounting for planning and control in managerial decision-making.

301: Fundamentals of Accounting Systems. 0-3-3. Preq., Accounting 202. A study of the fundamentals of accounting systems with emphasis on the relationships between accounting transactions and the internal and external uses of accounting data.

303-304-305: Intermediate Accounting. 0-3-3 each. Preq., Accounting 301. The theory and application of accounting procedures to financial reporting.

307: Income Tax. 0-3-3. Preq., Accounting 101 or 201. A study of Federal income tax laws and state income tax laws and their effect on individual income.

308: Managerial Cost Accounting. 0-3-3. Preq., Accounting 301. A study of cost systems; accounting peculiar to manufacturing enterprises; making cost statements; and solving cost problems.

312: Municipal and Government Accounting. 0-3-3. Preq., Accounting 301 and junior standing. Accounting procedures of the Federal, municipal, and state governments. Attention is given to the preparation of budgets, financial statements, and to budgetary control. Sp.

406: 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.

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.

414: Advanced Accounting. 0-3-3. Preq., Accounting 305. Study of business combinations and consolidated financial statements; partnerships; international operations; fiduciary accounting; and governmental and not-for-profit entities.

422: Taxation of Corporations and Shareholders. 0-3-3. Preq., Acct. 307 and senior standing. Indepth study of tax law that pertains to corporations and shareholders; corporate organizations; liquidation; reorganization; and Subchapters. F. *

433: Accounting Systems. 0-3-3. A study of accounting systems and systems installations.

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. *

490: Contemporary Problems in Accounting. 0-3-3. (Pass/Fail). Intensive study of current advanced accounting topics. W.

491: Advanced Theory of Accounting. 0-3-3. Preq., permission of adviser. Intensive study of current advanced accounting theory. *

493: Advanced Auditing. 0-3-3. Preq., Accounting 413. Intensive study of professional conduct, auditing standards, auditor's liability, reports, and internal auditing. *

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. F, Sp.

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. W.

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. W.

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. F.

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. Sp.

541: Accounting Analysis. 0-3-3. Preq., Permission of adviser 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.

587: Special Problems in Accounting. 3 Hours Credit. Preq., consent of committee. A supervised individual project involving library and/or field work. A comprehensive written report and/or examination is required.

610: Current Accounting Research. 0-3-3 Preq., Doctoral Standing with Accounting Masters or equivalent. Accounting research and design with emphasis on evaluation of results of research.

615: Theory of Accounting. 0-3-3. Preq., Doctoral Standing with Accounting Masters or equivalent. A detailed study of the development of accounting with emphasis on what should be as compared to Generally Accepted Accounting Principles.

ADMINISTRATION AND BUSINESS

189: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Administration and Business. May be repeated for credit

194: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Administration and Business. May be repeated for credit.

289: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Administration and Business. May be repeated for credit.

294: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Administration and Business. May be repeated for credit.

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.

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.

389: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Administration and Business. May be repeated for credit.

394: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Administration and Business. May be repeated for credit.

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.

489: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Administration and Business. May be repeated for credit.

494: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Administration and Business. May be repeated for credit.

550: Special Problems. 3 hours credit. 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.

589: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Administration and Business.

590: Research and Dissertation. 3 hours credit. Minimum credit allowed is 15 hours.

594: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Administration and Business.

610: Current Topics in Research. 0-3-3. May be repeated. Required of resident DBAs each quarter. Non-degree credit. Pass-Fail. Research methodology, current research of doctoral candidates, faculty, invited lecturers.

AGRICULTURAL BUSINESS

209: Small Engines. 3-0-1. Principles of operation, construction, application, maintenance, and overhaul procedures of small internal combustion engines.

211: General Shop. 6-0-2. Care and use of tools, gas and electric welding, cold metal work and woodwork.

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.

321: 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.

402: Economics of Farm Management. 0-3-3. Economics principles applied to individual farm organization and management and study of farm accounting systems. F. *

411: Seminar. 0-1-1 (3). Reviews, reports, and discussion of current problems in Agriculture and related fields. F, W, Sp.

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. *

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. F, W, Sp.

450: Natural Resource Economics. 0-3-3. Tools for economic decision-making applied to the use and allocation of natural resources associated with agriculture. Costs and benefits of various approaches to natural resource management.

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 Mechanization 211 or consent of instructor. The school shop, equipment and safety as they are utilized in a learning environment.

AIR FORCE AEROSPACE STUDIES

125: Introduction to the U. S. Air Force. (GMC). 0-1-1. Discussion of the Air Force today. Includes topics such as professionalism, communications, and the Air Force installation. Must be taken concurrently with AFAS 155. F.

126: U.S. Air Force Organization (GMC). 0-1-1. Analysis of the organization of the U.S. Air Force with discussion of the various major Air Force commands. Must be taken concurrently with AFAS 156. W.

127: The U.S. Air Force Doctrine (GMC). 0-1-1. Completes the analysis of Air Force organization. Examines Air Force doctrine and relationships with other U.S. military forces. Must be taken concurrently with AFAS 157. Sp.

155: AFROTC Leadership Laboratory. 1-0-0. Orientation and

instruction in Air Force dress and grooming standards and application of Air Force discipline, customs and courtesies. Study of the Armed Forces and AFROTC grade structure, insignia, and chain of command. Introduction to military drill. F.

156: AFROTC Leadership Laboratory. 1-0-0. Continuation in military customs and courtesies and military drill. Familiarization with Air Force services and activities. Application of physical fitness regimen to meet weight and fitness standards. W.

157: AFROTC Leadership Laboratory. 1-0-0. Structure and functions within the cadet corps, wing and base organizations. Additional instruction in military customs, courtesies and drill. Application of physical fitness regimen to meet weight and fitness standards. Sp.

225: The Development of Air Power (GMC). 0-1-1. The beginnings of manned flight from balloons and dirigibles, to the Wright Brothers, World War I and the interwar years. Must be taken concurrently with AFAS 255. F.

226: The Development of Air Power (GMC). 0-1-1. Continuation of 225. A study of air power during World War II, the Berlin Airlift and Korea. Must be taken concurrently with AFAS 256. W.

227: The Development of Air Power (GMC). 0-1-1. Continuation of 226. A study of U.S. air power in the international arena from 1955 to the present. Must be taken concurrently with AFAS 257. Sp.

255: AFROTC Leadership Laboratory. 1-0-0. Understanding the Air Force base environment. Application of Air Force standards, discipline, conduct, customs, and courtesies. Advanced drill positions and movements. Application of physical fitness regimen to meet weight and fitness standards. F.

256: AFROTC Leadership Laboratory. 1-0-0. Understanding selected career areas available based on individual qualifications. Advanced drill movements to include review and ceremony procedures. Discussion of privileges and responsibilities associated with an Air Force commission. Physical fitness training. W.

257: AFROTC Leadership Laboratory. 1-0-0. Advanced drill movements to include orientation in commanding a flight, command voice, and use of guidon. Preparation for summer field training. Application of physical fitness regimen to meet weight and fitness standards and conditioning for field training environment. Sp.

331: Communications for the Air Force (POC). 0-2-2. Functions and formats of Air Force communications. Emphasis on written and oral communications used by junior officers. Must be taken concurrently with AFAS 351. F.

332: Air Force Leadership (POC). 0-2-2. Analysis of leadership styles and the traits of a leader. Group dynamics. Must be taken concurrently with AFAS 352. W.

333: Military Management (POC). 0-2-2. Study of management principles with emphasis on the view of an Air Force junior officer. Must be taken concurrently with AFAS 353. Sp.

351: AFROTC Leadership Laboratory. 1-0-0. Attain leadership and management competence through participation in advanced leadership experiences. General structure and progression patterns common to selected officer career fields. Application of physical fitness regimen to meet weight and fitness standards. F.

352: AFROTC Leadership Laboratory. 1-0-0. Continuation of advanced leadership experiences to attain leadership and management competence. Application of procedures for evaluating cadets. Application of physical fitness regimen to meet weight and fitness standards. W.

353: AFROTC Leadership Laboratory. 1-0-0. Continuation of advanced leadership experiences to attain leadership and management competence. Comprehension of special summer training programs available to cadets. Application of physical fitness regimen to meet weight and fitness standards. Sp.

431: National Security Policy and Professionalism. (POC). 0-2-2. Examination of the national security policy process and all of the key participants. Military professionalism and officership will also be examined as to their impact on patterns of civil-military relations. Must be taken concurrently with AFAS 451. F.

432: Defense Strategy, Policy and Military Law (POC). 0-2-2. Examination of the methods of managing conflict to include arms control and the threat of war. The military justice system and professionalism will be covered as topics of special interest. Must be taken concurrently with AFAS 452. W.

433: Regional Studies and Preparation for Active Duty. (POC). 0-2-2. Examination of sensitive areas of the world and their impact on American National Security and what the new officer may expect on his/her initial assignment. Must be taken concurrently with AFAS 453. Sp.

451: AFROTC Leadership Laboratory. 1-0-0. Application of effective leadership and management techniques with individuals and groups. Comprehension of special education programs available to senior cadets. Application of physical fitness regimen to meet weight and fitness standards. F.

452: AFROTC Leadership Laboratory. 1-0-0. Continuation of the application of effective leadership and management techniques with individuals and groups. Comprehension of Communications and Operations Security programs. Application of physical fitness regimen to meet weight and fitness standards. W.

453: AFROTC Leadership Laboratory. 1-0-0. Continuation of effective leadership and management techniques with individuals and groups. Comprehension of active duty service commitments incurred throughout an officer's career. Understanding factors which facilitate a smooth transition from civilian to military life. Application of physical fitness regimen to meet weight and fitness standards. Sp.

ANIMAL SCIENCE

111: Introduction to Animal Science. 3-3-4. Introduction to the field of Animal Science with emphasis on breeds, terminology and basic husbandry practices of dairy and beef cattle, horses, swine, sheep and poultry and an introduction to veterinary medicine. F.

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 111. 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.

212: Introduction to Racetrack Procedures. 0-3-3. Preq., Animal Science 211 or permission of instructor. Terminology and procedures used in racing industry. Description of job opportunities and duties of racing secretary, starters, and jockey agents. Rules of racing; backside techniques. W.

301: Principles of Animal Nutrition. 0-3-3. Preq., Animal Science 111 and Chemistry 100 or 130. The source, chemical composition, and nutritive value of farm animal feedstuffs. F.

302: Testing Dairy Products. 3-2-3. A chemical and bacterial test of milk and milk products. W, even.

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.

304: Dairy Manufacturing-Fluid Milk Products. 3-2-3. The sanitary production, transportation, processing, distribution, and public health inspection of milk and related products. Sp, even.

305: Dairy Manufacturing-Frozen Dessert Production. 3-2-3. The manufacture of ice cream and frozen dairy products. W, odd.

306: Dairy Manufacturing-Cultured Dairy Products. 6-1-3. Manufacture of butter, various types of cheese, and other cultured products. Defects, packaging, and merchandising of butter and cheese. Sp, odd.

307: Endocrinology and Milk Secretion. 0-3-3. Development, structure and functional processes of the endocrine and mammary systems. F.

309: Anatomy and Physiology of Animals. 3-2-3. Preq., Animal Science 111 and Biological Sciences 120. The structures and functions of the tissues and organs of animals. Sp.

315: Meats. 6-1-3. Preq., Animal Science 111 and Bacteriology 210. Methods and practices involved in the processing and preservation of meats. W.

318: Physiology of Reproduction. 0-2-2. Preq., Animal Science 307 and Life Sciences 300. Physiology of reproduction of domestic farm animals. 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. 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: Nutritional Requirements of the Horse. 0-2-2. Preq., Animal Science 211, 301. An in-depth study of the nutrient requirements of the horse. W.

321: Reproductive Physiology of the Horse. 3-2-3. Preq., Animal Science 211. An in-depth study of reproductive physiology of the horse. F.

322: Equine Behavior Manipulation. 0-2-2. Preq., Animal Science 211 or permission of instructor. Developing and using interspecies communication techniques to manipulate behavior and mental attitude of the horse. Sp.

324: Yearling Foal Management. 8-1-2. Preq., Animal Science 211 and 322. Techniques of halter breaking, lead training and grooming weanling/yearling foal using pressure-release behavior modification techniques. W.

401: Animal Breeding. 0-2-2. Preq., Life Sciences 300. Principles and application of animal breeding, including gene frequencies, heritabilities, inbreeding coefficients, selection and mating systems. 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. 3-2-3. Preq., Animal Science 301. A review of applied nutritional practices and management, and ration formulation for beef and dairy cattle, horses, swine and poultry. *

407: Dairy Production. 3-3-4. Preq., Animal Science 202 and 301, 405. 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. *

409: Animal Pathology. 3-2-3. Preq., Bacteriology 210 and Animal Science 307. The etiology, symptoms, prevention, control and eradication of the major diseases of farm animals. F. *

410: Beef Production. 3-3-4. Preq., Animal Science 204, 301, 405. Breeding, feeding, marketing and management of beef cattle. 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. *

419: Embryo Transfer Techniques. 3-0-1. Preq., Animal Science 318. Application of the methods of embryo collection, evaluation, processing and implantation. Sp. *

420: Horse Behavior. 3-2-3. Preq., Animal Science 411 and permission of instructor. Principles and procedures employed in tackless training of horses.

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. *

425: Special Problems in Animal Science. 1 hour credit (8). Preq., Written consent of instructor. Foal management and sale preparation; steer fitting and showing; or topic selected with consent of adviser.

430: Dairy Plant Management. 6-1-3. Preq., Animal Science 302, 304, 305. The management problems of dairy processing and manufacturing plants.

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. *

450: Advanced Animal Breeding. 0-3-3. Preq., Animal Science 401 or consent of instructor. Advanced Quantitative Genetics principles applied to horses and livestock. Emphasis on theory and application of variance, selection, inbreeding and crossbreeding, scale, threshold and correlated characters. *

APPAREL AND TEXTILES (See Merchandising and Consumer Affairs)

APPLIED COMPUTATIONAL ANALYSIS AND MODELING

610: Current Topics in Research. 0-3-3. May be repeated. Required for ACAM doctoral students each quarter. Non-degree credit. Research Methodology, current research of doctoral candidates, faculty, invited lecturers.

620: Special Topics in Computational Science and Engineering. 1-3 hours credit. May be repeated for 1-3 hours credit each time.

690: Dissertation Research. 0-3-3. Doctoral students only. Registration in any quarter may be for three semester hours credit or multiples thereof, up to a maximum of nine semester hours credit per quarter. Maximum total credit allowed is thirty hours.

ARCHAEOLOGY

401: Introduction to Archaeology. 4-2-3. An introduction to the techniques of research and field work in Archaeology. *

410: Selected Topics in Archaeology. 0-3-3. Seminar in archaeology with topic designated by instructor. May be repeated for credit as topic changes.

420: Indians of the Southwest. 4-2-3. A survey of Indian Archaeology in the southwestern United States. *

462: 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. *

463: 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. *

464: 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. *

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.

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 Architecture 110 at a more advanced and comprehensive level through problems involving the abstraction and composition of complex images using diverse media.

130: Three-Dimensional Design. 6-0-2. Preq., Art 115 and 116. Three-dimensional experiments in the composition of the point, line and plane as architectonic elements of spatial design.

131: Architectural Theory. 0-2-2. An examination of architecture as a language system, involving the investigation of its basic vocabulary and grammar and their development and refinement in the history of architecture. Sp.

132: Advanced Communication Skills. 6-0-2. Preq., Art 125 or 126, Coreq., Architecture 130. Advanced techniques for presentational and representational communication are explored through studio problems requiring sophisticated graphic or non-verbal communication techniques.

200: Issue Investigation. 0-1-1. A synoptic examination of the principles of site analysis and planning as related to building. Sp.

210: Architectural Design. 9-0-3. Preq., Architecture 130, 131, and 132. 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.

211: Architectural History. 0-2-2. An examination of the classical language of architecture with specific reference to the contributions of the social, cultural, intellectual, technological contexts to its development. F.

220: Architectural Design. 9-0-3. Preq., Architecture 210. A continuation of Architecture 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. Investigation of the concepts, principles, and conventions associated with a building's structure, construction materials and assemblies.

222: Architectural History. 0-2-2. Preq., Architecture 211. An examination of the modern language of architecture with specific reference to the social, cultural, intellectual, and technological contexts to its developments. W.

230: Architectural Design. 9-0-3. Preq., Architecture 220. Coreq., Architecture 200. 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. An examination of the various movements that have emerged since 1960 with reference to the social, cultural, intellectual, and technological contexts that fostered their developments. Sp.

232: Environmental Systems I. 0-3-3. Study of natural environmental factors and physical systems on building envelopes and interior spaces emphasizing passive energy techniques, daylighting, electrical lighting and acoustics. F.

300: Issue Investigation. 0-1-1 (2). A synoptic examination of the internal logic of buildings: codes and regulations, structural systems, mechanical and electrical systems. F, Sp.

301: Computer Applications. 6-0-2. An introduction to architectural applications of computer-aided-design and drafting software with an emphasis on the development of basic skills.

310-320: Advanced Architectural Design. 9-0-3 each. Preq., Architecture 230. Critical examination of the design implications and applications stemming from the relationship existing between architecture and the settlement.

311: Built Form and Behavior. 0-2-2. A critical analysis of the psychological, social and cultural factors that are manifest in and influenced by architectural form. F.

321: Architectural History Seminar. 0-2-2 (6). Preq., Architecture 331. Examination and investigation of selected topics associated with architectural history and theory.

330-430-470: Advanced Architectural Design. 9-0-3 each. Preq., Architecture 230. Investigation of the art and craft of building through the design and fabrication of three-dimensional architectonic objects. F, Sp.

331: Advanced Theory of Architecture. 0-2-2. Preq., Architecture 231 or Art 367. 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.

332: Environmental Systems II. 0-3-3. Study of building systems, regulatory agencies, and materials with emphasis on building codes, plumbing, mechanical, electrical and vertical transportation systems. W.

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.

380: Applied Studio Practices. 6-1-3-(9). Practical problems in graphic and visual communications.

400: Studio Problems. 6-1-3-(9). Specialized studio problems in aqueous media on paper.

401: Issue Investigation. 0-1-1 (2). A synoptic examination of building materials and assemblies. F,W,Sp.

402: Field Travel. 0-1-1 (3). The examination and analysis of contemporary architectural works and urban environments through participation in supervised travel.

403: Project Documentation. 9-0-3 (6). The full documentation of a project of historic or architectural significance in Historic American Buildings Survey format.

404: Project Process. 0-1-1. Preq., Sophomore standing. Observation and analysis of the process of project delivery from initial contact to substantial completion. F, W, Sp.

407: Computerized Construction Documentation. 6-1-3. Preq., Senior standing. Development of architecture details, systems, and techniques in the preparation of contract documents.

410-420: Advanced Architectural Design. 9-0-3 each. Preq., Architecture 230. Critical examination of the design implications and applications stemming from the relationship existing between architecture and the urban context.

411: Planning and Urban Design Theory. 0-2-2. Preq., Architecture 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.

417: Internship in Architecture. 20-0-4 (8). Preq., Senior Standing. Supervised experience in the office of a registered architect, interior designer, engineer or landscape architect. A minimum of 20 hours per week. F, W, Sp. Grade P or F.

421: Theory of Structures II. 0-3-3. Preq., Architecture 221. A continuation of Architecture 221.

431: Architectural Seminar. 0-2-2 (6). Preq., Architecture 331. Examination and investigation of selected topics associated with the internal logic of buildings: codes, building systems, construction materials, and assemblies. W.

436: Written Contract Documents. 0-2-2. Preq., Senior standing. Construction specification writing principles using the CSI format and procedures.

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.

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.

471: Professional Practice. 0-2-2. Architect's role and responsibility in the project process of predesign, design, construction documents, and the administration of the construction contract.

472: Architectural Seminar II. 0-2-2 (6). Preq., Architecture 331. Examination and investigation of selected topics associated with the practice of architecture: ethics, management, marketing, services, and finances.

473: Design Research. 0-2-2. A study of research method for the architect including the execution of scholarly research and programming as related to the degree design project.

474: Computers for Designers. 2-2-2. Preq., Architecture 301. Advanced Micro-computer applications in architecture with an emphasis on 3-D modeling and rendering techniques. F, W.

480: Advanced Architectural Design. 12-0-4. Preq., Architecture 473. Initiation of the degree design project through multiple schematic design iterations that focus on the resolution of formal, ideological, contextual and operational issues. W, Sp.

481: Professional Practice II. 0-2-2. Preq., Architecture 471. The business of architecture with a emphasis on practice trends of the future in respect to project and design management.

482: Architectural Programming. 0-2-2. Advanced techniques of research, analysis and programming through which the effect of pre-design issues and constraints are examined.

490: Degree Design Project. 12-0-4. Preq., Architecture 480. A continuation of the degree project that focuses on the design development of previously resolved schematic design. Sp, F.

491: Professional Practice III. 0-2-2. Preq., Architecture 481. The legal, ethical and moral issues of architectural practice as related to the changing professional context.

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

659: Specialized Individual Studio Problems. 6-1-3-(9). Permission and project approval must be obtained from Department Head.

ART

115: Design. 6-1-3. Formal problems of the theory and practice in the elements and principles of design.

116: 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.

119. Introduction to Personal Computers for Artists. 3-0-1. Preq., Art 115 and 125. An introduction to personal computers and their use as tools for artists. Basic word processing and the use of elementary design software will be taught. F, W, Sp. Art Majors Only.

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.

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 & 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, fiberglass, 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. Preq., Art 420. 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.

271: Experimental Black and White Techniques. 6-1-3. Preq., 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.

290: 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. (non-art majors only)

301: Appreciation and Application of Elementary Art Structure. 0-3-3. Preq., consent of instructor. Theory and practice using the principles of design as basis for appreciation of the visual arts.

308: The Mechanics of Graphic Design. 6-1-3. An introduction to the methods and principles of the graphic field. F.

309: Typography I. 6-1-3. Preq., A grade of C or higher in Art 308. Studio problems dealing with contemporary design solutions incorporating typography. Requires a Pass/Fail portfolio review for entry into the major. W.

312: Production. 6-1-3. Preq., A grade of C or higher in Art 309 Projects. Focuses on the technology and techniques for preparation of materials for printing. F.

315: Layout I. 6-1-3. Preq., A grade of C or higher in Art 309. Contemporary problems in design and layout as related to 2-dimensional formats. Sp.

316: Layout II. 6-1-3. Preq., Art 312, 315. Advanced problems in layout with an emphasis on advertising campaigns. W.

317: Typography II. 6-1-3. Preq., A grade of C or higher in Art 315, Emphasis on advanced problems in typography with special uses of the computer. Sp.

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 I. 6-1-3. Preq., A grade of C or higher in Art 309. An exploration of other mediums and techniques of contemporary illustration. W.

326: Illustration II. 6-1-3. Preq., Art 315 and 325. Advanced illustration problems exploring graphic imaging in advertising, editorial, and publication formats. F.

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. A basic survey of printing techniques in linoleum cut, wood cut, collograph, dry point, etching and lithography. F, Sp.

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.

350: Interior Design Theory and Issues. 0-1-1 (3). Preq., Junior Standing. Critical examination, investigation and analysis of theory, principles and specific formal, contextual, conceptual and/or operational issues affecting problems of interior design. F, W, Sp.

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.

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 and Architecture centers to visit galleries and museums.

370: Color Photography. 6-1-3. Preq., Art 270. An introduction to printing film negatives and transparencies onto color photographic papers.

372: Studio Photography. 6-1-3. Preq., Art 173. 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.

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.

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 design, including computer graphics for the graphic design portfolio. F, W, Sp. *

415: Studio Problems. 6-1-3 (9). Advanced problems in design.*

417: Senior Portfolio. 6-1-3. Preq., Art 415, senior standing. Taken only in the quarter of graduation. Design and preparation of job portfolio and resume culminating in an exhibition. Slide portfolio for departmental archives is required. 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, anthropomedtrics, 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 Noveau to the present, including architectural elements, furniture, lighting, wallcovering, flooring and building materials.

459: Women and the Arts. 0-3-3. Survey of women's involvement with the visual arts. Major emphasis upon anonymous "female" crafts and leading women artists, 1600 to present. *

460: Monuments of Non-Western Art. 0-3-3. Survey of monuments of architecture, sculpture, painting, etc. from the most glorious epochs of selected Asian, African, Pre-Columbian, and Oceanic cultures. *

461: American Art, 1929-1990. 0-3-3. Survey of major monuments, artists, styles, and changes in modern American art. *

465: American Art in the Age of Expansion, 1865-1893. 0-3-3. A survey of leading artists, styles, movements and changing attitudes about art. It stresses socioeconomic aspects of art-making and patronage. *

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 America 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. *

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, and use of computers in digital imagery. Admission by portfolio evaluation and/or faculty recommendation. *

474: Senior Exhibition. 6-1-3 (9). Senior Standing. One quarter prior to graduation the student must present an exhibition of sufficient quality to warrant exiting the program.

490: Sculpture. 6-1-3-(9). Creative approach to the problems in sculpture with individually directed experiments in the various sculptural processes. *

499: Issues in the Arts. 0-3-3. A seminar for undergraduate senior and graduate students in the arts. This course will cover verbal and written interchange of ideas and issues in the arts. Seniors and graduate students only. W.

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

189: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Arts and Sciences. May be repeated for credit.

194: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Arts and Sciences. May be repeated for credit.

289: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Arts and Sciences. May be repeated for credit.

294: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Arts and Sciences. May be repeated for credit.

389: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Arts and Sciences. May be repeated for credit.

394: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Arts and Sciences. May be repeated for credit.

435: Undergraduate Research. 1 - 3 (6) Hours credit. Introduction to methods of research. Preq., consent of instructor. Credit depends on nature and depth of problem assigned.

489: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Arts and Sciences. May be repeated for credit.

494: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Arts and Sciences. May be repeated for credit.

503: Special Problems. 1-3 Hours credit (6). Independent study. Topics arranged to meet the needs of the student.

551: Research and Thesis. 3 hours credit or multiple thereof. Maximum credit allowed is 6 hours.

589: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Arts and Sciences.

590: Research and Dissertation. 3 hours credit or multiples thereof. Maximum credit allowed is 30 hours.

594: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Arts and Sciences.

BACTERIOLOGY

210: Introduction to Microbiology. 3-2-3. Basic concepts and laboratory procedures involving microorganisms. F,Sp.

214: Survey of Microbiology. 4-3-4. Fundamental concepts of microbiology, emphasizing techniques and laboratory procedures used in medically-related studies.

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.

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. 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 210 212. Bacteria pathogenic to man; principles of infection and immunity in man and other animals. Sp. *

407: Genetics of Microorganisms. 3-2-3. Preq., Bacteriology 330. Heredity in microorganisms, biochemical genetics; and genetic control of metabolism. *

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.

414: Advanced Applied Microbiology 3-2-3. Preq., consent of instructor. Survey of the areas of applied microbiology emphasizing project approach. *

415-416: 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. *

421: Advanced Mycology. 3-2-3. (Same as Biological Sciences 520). Preq., consent of instructor. Collection and identification of fungi; cultural techniques for specialized purposes.

426: History of Literature of Microbiology. 0-3-3. Preq., consent of instructor. Evolution of the field of microbiology and familiarization with the current literature of the field.

486: Marine Microbiology. 8-3-4. Preq., Bacteriology 210, 213; Biological Sciences 122, 123; Biological Sciences 120, 121. 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.

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.

512: Advanced Immunology. 6-1-3. Preq., consent of the instructor. An advanced study of the activities of antigens and antibodies.

BIOLOGICAL SCIENCES

101: Fundamentals of Biology. 0-3-3. Introduction to biological concepts of cell structure and physiology, genetics, evolution, and ecology. F, W, Sp.

102: Fundamentals of Biology II. 0-3-3. Preq., Biological Sciences 101. Continuation of biological topics including origin of life, survey of the five kingdoms, plant and animal structure. F, W, Sp.

120: Biological Principles. 0-3-3. Designed for freshmen majoring in science fields. Introduction to biological investigation methods, cells, metabolism, genetics, and evolution. F, W, Sp.

121: Biological Principles Laboratory. 3-0-1. Preq., Biological Sciences 107 or 120, or concurrent enrollment. Student-oriented experiments and demonstrations emphasizing life processes at the cellular level. F, W, Sp.

122: Botany. 0-3-3. Preq., Biological Sciences 120, 121. An introduction to the classification, anatomy, and physiology of plants. F, W, Sp.

123: Botany Laboratory. 3-0-1. Preq., Biological Sciences 106, or 122, or concurrent enrollment. Basic investigations of plant anatomy and physiology. F, W, Sp.

124: Zoology. 0-3-3. Preq., Biological Sciences 120, 121. An introduction to the classification, anatomy, and physiology of animals. F, W, Sp.

125: Zoology Laboratory. 3-0-1. Coreq., Biological Sciences 124. Laboratory studies of diversity in animal phyla with emphasis on form and function. F, W, Sp.

201: Scientific Principles. 0-3-3. A general course embracing the principles of the biological and physical sciences, incorporating teacher demonstration and laboratory activities. F, W, Sp.

205: Plant Anatomy. 3-2-3. Preq., Biological Sciences 122, 123. A comparative study and interpretation of the internal structure of vascular plants. W.

210: Introductory Plant Taxonomy. 3-2-3. Preq., Biological Sciences 106 or 122. Basic concepts of plant taxonomy and a survey of the most common vascular plant families comprising the local flora. Sp, odd.

212: Conservation and Management of Natural Resources. 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., Biological Sciences 122, 123. Survey of primitive vascular plants through the angiosperm family Amaranthaceae.F

222: Taxonomy and Morphology of Angiosperms. 3-2-3. Preq., Biological Sciences 221. Survey of angiosperm families from Amaranthaceae through Leguminosae. W.

223: Taxonomy and Morphology of Advanced Angiosperms. 3-2-3. Preq., Biological Sciences 222. Survey of angiosperm families from Leguminosae through Orchidaceae. Sp.

224: Human Anatomy and Physiology. 0-3-3. Preq., Consult with your advisor. The structure and functions of the organ systems of the human body, including anatomy of the vocal and hearing mechanisms. F, Sp.

225: Human Anatomy and Physiology. 0-3-3. Preq., Consult with your advisor. Introduction to human anatomy and physiology including structure and function of cells, tissues, organs and the integumentary, skeletal, muscular, and nervous systems. F, Sp.

226: Anatomy and Physiology Laboratory. 4 1/4-0-1. Preq., Biological Sciences 225, or concurrent enrollment. Specially designed exercises permitting students to observe the physiology and anatomy of mammals. F, W, Sp.

227: Human Anatomy and Physiology. 0-3-3. Preq., Biological Sciences 225 or equivalent. A continuation of 225. Including structure and function of circulatory, respiratory, digestive, excretory, endocrine and reproductive systems. W.

228: Advanced Anatomy and Physiology Laboratory. 4 1/4-0-1. Preq.,Biological Sciences 227, or concurrent enrollment. Additional laboratory exercises to illustrate the anatomy and physiology of animals. W.

284: Introduction to Marine Science. 8-3-4. Preq., Biological Sciences 124, 125. Introduction to chemical, geological, and biological processes in the oceans and coastal environments; interrelationships of humans and the marine environment. Five weeks spent at the Louisiana Universities Marine Consortium Coastal Laboratory.

285: Introduction to Marine Zoology. 8-3-4. Preq., Biological Sciences 124, 125. Survey of marine animals, particularly those of the Louisiana Gulf Coast, including classification, morphology, physiology, and ecology. Five weeks at the Louisiana Marine Consortium Coastal Laboratory.

290: Comparative Anatomy of Vertebrates. 8 1/2-2-4. Preq., Biological Sciences 124, 125. Comparative anatomy and evolution of the vertebrates. F, Sp.

310: Genetics: 4 1/4-2-3. Preq., Biological Sciences 124, 125. Principles of inheritance in plants and animals at the biochemical, cellular, organismal, and population levels. F, W.

313: Ecology. 4 1/4-2-3. Preq., Biological Sciences 124, 125. An overview of the interactions of plants, animals, and non-living factors as they influence individuals, populations, communities, and ecosystems. F, W, Sp.

315: Cell Biology. 0-3-3. Preq., Biological Sciences 124, 125. Detailed study of the structural and functional organization of the cell and the interactions of the organelles with respect to metabolism and heredity. W.

316: Cell Biology Laboratory. 4 1/4-0-1. Coreq., Biological Sciences 315. Laboratory studies of cells and their properties. W.

317: Wildlife Management Principles. 4 1/4-2-3. Preq., Biological Sciences 124, 125, and computer literacy. A review of the techniques used in the identification, study, and management of wildlife and their habitat. F.

320: Animal Physiology. 0-3-3. Preq., Biological Sciences 124, 125, 290. Coreq., Biological Sciences 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., Biological Sciences 320. Laboratory studies in animal physiology. F, Sp.

330: Plant Pathology. 3-2-3. Preq., Biological Sciences 122, 123. A study of plant diseases and disorders. Sp.

345: Food Plants of Game Animals. 3-2-3. Preq., Biological Sciences 223. Study of higher forms of land plants that supply food for game animals. F.

350: Mycology. 3-3-4. Preq., Biological Sciences 122, 123. Morphology, taxonomy, development, and phylogeny of fungi. F.

355: Phycology. 3-3-4. Preq., Biological Sciences 122, 123. Morphology, taxonomy, development, and phylogeny of algae.Sp

360: Biological Problems. 1 - 3 hour(s) credit (6). Preq., Junior standing and written permission of instructor. An introduction to the principles of research. F, W, Sp.

400: Microscopy: Theory and Application. 4 1/4-1-2. Preq., Written permission of the instructor. The theory and practice of light microscopy, photomicroscopy, and microtechnique. W. *

401: Parasitology. 4 1/4-2-3. Preq., Biological Sciences 124, 125. Protozoan and helminthic parasites of medical and veterinary importance to humans with emphasis on morphology, life cycles, pathogenesis, diagnosis, and control. F. *

403: Nature Study. 0-3-3. Preq., Junior standing. A study of major animal groups and the local flora. This course is offered especially for elementary teachers.

404: Economic Botany. 0-3-3. Preq., Junior standing. Principal plants of economic importance to humans.

405: Plant Physiology. 3-2-3. Preq., Biological Sciences 122, 123, Chemistry 102 or 130. Study of life processes and functions of plants. F. *

407: Histology. 8 1/2-1-3. Preq., Biological Sciences 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., Biological Sciences 310 or consent of the instructor. Principles and methods for analyzing biochemical and chromosomal polymorphisms, metabolic pathways, pedigrees, and population differentiation with emphasis on humans. Sp, even. *

411: Developmental Biology. 6-2-3. Preq., Biological Sciences 124, 125. A study of gametogenesis, fertilization, and the embryological development of organisms using descriptive and experimental approaches. W, odd. *

413: Advanced Ecology. 3-2-3. Preq., Biological Sciences 313. An in-depth study of the interactions of the plant and animal communities with their environments. Sp, even. *

414: Entomology. 4 1/4-2-3. Preq., Biological Sciences 107, or 120, 121. Study of insect structure, classification, life cycles, and control practices, with emphasis on economic pests. F, even. *

420: Environmental Animal Physiology. 0-3-3. Preq., 12 hours of Biological Sciences including 320. Functional adaptations of animals to their environments, with emphasis on vertebrates. *

422: Molecular Biology. 6-2-3. Preq., Written permission of

instructor required. Emphasizes eukaryotic DNA, RNA structure, mechanisms of replications, transcription, translation, regulation, and control of gene expression. Laboratories introduce gene cloning, DNA, protein electrophoresis, and blotting. Sp. *

423: Endocrinology. 0-3-3. Preq., Biological Sciences 320, 321. A study of the embryology, anatomy, biochemistry, and physiology of the endocrine glands in various animals. Sp.

425: Electron Microscopy. 6-2-3. Preq., Written permission of the instructor required. Essential methods for biological electron microscopy: instrument operations, photomicrography, tissue sectioning and knife preparation. W.

426: Evolution. 0-3-3. Preq., Biological Sciences 120, 121, 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., Biological Sciences 124, 125. Systematics, anatomy, and ecology of fish with emphasis on local freshwater species. F, even. *

430: Herpetology. 4 1/4-2-3. Preq., Biological Sciences 124, 125. The taxonomy, distribution, life histories, and ecology of the herpetiles, with special emphasis on those species found in Louisiana. Sp, even. *

432: Mammalogy. 4 1/4-2-3. Preq., Biological Sciences 124, 125. The identification, taxonomy, characteristics, and general biology of mammals with emphasis upon those of North America. W. *

433: Ornithology. 4 1/4-2-3. Preq., Biological Sciences 124, 125. Identification, taxonomy, characteristics, and general biology of birds, with emphasis upon those of North America. Sp. *

434: Limnology. 4 1/4-2-3. Preq., Biological Sciences 124, 125. The study of the chemical, physical, and biotic aspects of freshwater environments. F, odd. *

435: Pond Management. 4 1/4-2-3. Preq., Biological Sciences 124, 125, 434. a detailed study of biotic adaptations and biotic and chemical controls in pond ecosystems with emphasis on aquatic vertebrates. Sp, odd. *

436: Field Botany Problems. 30-0-3. Preq., Junior standing and permission of instructor. A field trip experience for study of aquatic and terrestrial plant communities. Offered on demand. *

437: Field Zoology Problems. 30-0-3. Preq., Junior standing and permission of instructor. A field trip experience for studying the natural history of animal species. 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 the Louisiana Universities Marine Consortium Coastal Laboratory.

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. F, W, Sp.

450: Biological Topics. 0-3-3. An opportunity to observe and discuss topics of current interest in the biological and/or medical sciences. Offered on demand.

455: Wildlife Diseases. 0-3-3. Preq., Biological Sciences 124, 125. Study of viral, bacterial, fungal, and metazoan causative agents of disease of wildlife. W. *

457: Wildlife Policy and Administration. 0-3-3. Preq., Biological Sciences 120, 121. An introduction to the procedures and policies influencing the administration of wildlife and natural resources at the federal, state, and local level. W. *

458: Environmental Law. 0-3-3. Preq., Biological Sciences 120, 121, or approval instructor. A review and analysis of state and federal laws, conventions, and international treaties that influence natural resource management. Sp. *

460: Analytical Thinking For Biologists. 3-2-3. Development of skills for science problem-solving, critical thinking, and communication. F. *

470: Medical Ethics. 0-3-3. Reading and discussions of the application of various principles of ethics to questions of medical practice. *

475: Scientific Inquiry. 0-2-2. Focus will be on the pursuit of scientific knowledge, emphasizing materials and methods employed. A chronological approach will correlate historical settings with the persons who experienced triumph and tragedy in their endeavors. W.

480: Undergraduate Seminar. 0-1-1. Preq., Senior standing. Required of all senior biological sciences majors. Supervised study, reports, and discussion of current biological literature. Su, F, W, Sp.

483: Marine Botany. 8-3-4. Preq., Biological Sciences 122, 123. Study of marine and coastal algae and vascular plants including classification, morphology, life cycles, and ecology. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

484: Marine Vertebrate Zoology. 8-3-4. Preq., Biological Sciences 124, 125, plus 8 additional hours of biology. General study of the marine chordates with particular emphasis on fishes, including classification, structure, function, and ecology. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

485: Marine Ecology. 8-3-4. Preq., Biological Sciences 124, 125; Chemistry 102, 104. Relationships of marine estuarine organisms to environmental factors; interactions among organisms, communities and ecosystems of the Louisiana coastal zone. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

486: Marine Invertebrate Zoology. 8-3-4. Preq., Biological Sciences 124, 125. General study of the classification, structures, function, and ecology of marine and estuarine invertebrates, emphasizing those of the Louisiana Gulf Coast. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

505: Advanced Plant Physiology. 3-2-3. Preq., Biological Sciences 405. Principles that underlie interpretation of the physical and metabolic processes of plants. Offered on demand.

508: Field Botany. 3-2-3. Plant identification and the relation of plants to their environment, offered especially for elementary and secondary teachers. odd.

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. Offered on demand.

513: Ecological Topics. 3-2-3. Preq., Biological Sciences 313, or 413. An advanced study of selected ecological topics. Offered on demand.

515: Contemporary Topics. 1-4 hour(s) credit. An opportunity to examine and discuss a variety of timely topics pertaining to the biological sciences. May be repeated with a change in subject matter. F, W, Sp.

520: Zoological Systematics. 0-1-1. A detailed study of taxonomic principles and procedures based on the International Rules of Zoological Nomenclature. W, odd.

524: Advanced Plant Taxonomy. 3-2-3. Preq., Biological Sciences 223. Problems of nomenclature and recent concepts of plant classification. Offered on demand.

525: Advanced Plant Anatomy. 3-2-3. Preq., Biological Sciences 205. An advanced study of the internal structures of vascular plants. Offered on demand.

535: History of Botany. 0-3-3. Preq., Consent of the instructor. Special assigned readings and reports. Offered on demand.

545: 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.

550: Advanced Mycology. 3-2-3. Preq., Biological Sciences 350. Collection and identification of fungi; culture techniques for specialized purposes. Offered on demand.

BIOMEDICAL ENGINEERING

100: Introduction to Biomedical Engineering. 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. F.

201: Principles of Biomedical Engineering. 0-3-3. Preq., Chemistry 102, Biological Sciences 120, 121, Biomedical Engineering 100, Mathematics 230. Basic qualitative and quantitative principles of biomedical engineering are presented. The general field of biomedical engineering is reviewed with respective fundamentals emphasized. F.

205: Microcomputer Applications in Biomedical Engineering. 3-0-1. Preq., Biomedical Engineering. 201. Solution of biomedical problems using microcomputers. Handling, modeling, and reporting of biomedical data. W.

301: Biomedical Fluid Mechanics and Biomedical Energy Transport. 0-3-3. Preq., Biomedical Engineering 201, Math 350, Physics 202, Biological Sciences 320, 321, and Biomedical Engineering 320 (or other thermodynamics). The principles of fluid mechanics and thermal energy exchange (momentum and energy balances) in biomedical systems. Analysis of engineering and physiological systems and incorporation of these principles into design of such systems. W.

310: Introduction to Clinical Engineering. 3-2-3. Preq., Biomedical Engineering 201. A foundation course in medical and clinical terminology, medical instrumentation, medical sciences, hospital procedure and medical practice from an engineering perspective. W.

320: Bioenergetics. 0-3-3. Preq., Mathematics 231, Physics 201, Biomedical Engineering 201, Engineering 102 and Engineering Mechanics 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.

325: Biomedical Engineering Instrumentation. 3-3-4. Preq., Biomedical Engineering 201, Electrical Engineering 222, English 102, Physics 202, Math 232, Biological Sciences 124/125. Analysis and design of Biomedical instrumentation. Basic circuitry, electronics and laboratory techniques including transducers, biopotentials, amplifiers, measurement and safety. Sp.

400: Biomedical Engineering Seminar. 3-0-1. Preq., Senior standing. Instruction and practice in conference-type discussions of technical and professional matters of interest to biomedical engineers. F.

401: Biomedical Mass Transport. 0-3-3. Preq., Biomedical Engineering 301. The principles of mass balances and transport phenomena in biomedical systems. Analysis of engineering and physiological systems and incorporation of these principles into the design of such systems. F.

402: Biomedical Engineering Design I. 0-2-2. Preq., Biomedical Engineering 400, 401, 420; Engineering Mechanics 301, English 303. Individualized design projects requiring integration and synthesis of prior engineering, life science, design and analytical skills. Utilization of the engineering design process and consideration of biomaterials, biomechanics, human factors, ethical and legal concerns, and oral and written communication skills. W.

403: Analysis and Design of Physiological Control Systems. 0-3-3. Preq., Biomedical Engineering 325, 401, Electrical Engineering 321, Engineering Mechanics 203. Methods for analyzing and designing linear feedback systems. Physiological control mechanisms presented qualitatively and quantitatively. Design of systems involving physiological systems. W.

404: Biomedical Engineering Design II. 0-2-2. Preq., Biomedical Engineering 402, 403. A continuation of Biomedical Engineering 402. Sp.

405: Engineering Analysis of Physiological, Biochemical, and Atomical 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.

410: Clinical Engineering Internship. 20-20-6. Preq., Biomedical Engineering 310 or equivalent and consent. A practical exposure to the health care delivery system. Application of engineering principles to problems unique to that system.

420: Biomaterials and Biomechanics. 0-3-3. Preq., Biomedical Engineering 301, Engineering Mechanics 301 or 311. Properties of living tissue. Biocompatibility. polymers, metals, and ceramics as biomaterials. Implants for hard and soft tissue. Fundamentals of biomechanics.

425: Advanced Biomedical Instrumentation Systems. 3-2-3. Preq., Biomedical Engineering 325, Electrical Engineering 321, or consent. Further analysis and design of biomedical instrumentation. Practical aspects of ideal and real operational amplifiers, and an introduction to microprocessor interfacing. F.

440: Computer Applications for Biomedical Engineers. 0-3-3. Preq., Biomedical Engineering 201, Engineering 102. The course is designed specifically to training 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. May be repeated for credit. Preq., senior standing and consent of instructor. Problems covering selected topics of current importance or special interest or need. F, W, Sp.

455: 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 455.

500: Systems Physiology for Biomedical Engineers. 0-3-3. Preq. Graduate standing and permission of the instructor. Principles of human physiology, including cellular physiology, and the nervous, muscular, cardiovascular, and respiratory systems for engineers. Graduate core course.

501: Physiology Modeling I. 0-3-3. Preq., Biomedical Engineering 500 and Differential Equations, or consent of the instructor. Principles and applications of transport phenomena to biomedical systems and devices. Distributed, lumped, and lumped-distributed modeling. Graduate core course.

502: Biotransport Phenomena. 0-3-3. Preq., Biomedical Engineering 501. A continuation of Biomedical Engineering 501. F, Even

503: Physiological Modeling II. 0-3-3. Preq., Biomedical Engineering 500 or consent of instructor. Application of mathematical modeling and engineering analysis to physiological components and systems. Feedback mechanisms for homeostasis. Computer project implementations. Graduate core course.

510: Bioinstrumentation. 0-3-3. Preq., Graduate standing and consent of instructor. Introduction to medical instrumentation systems, biosensors, biopotentials, signal conditioning, analog-to-digital conversion, and signal processing. Graduate core course.

515: Biosensors and Their Applications. 4-2-3. Permission of instructor. Introduction to biosensors in general with special emphasis on oxygen biosensors and their development. Surgical techniques and laboratory procedures for animal experimentation.

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. F, Odd.

550: Special Topics. 3 hours credit. Preq., Permission of instructor. May be repeated for credit. Selected topics dealing with advanced subjects in Biomedical Engineering. F,W,Sp.

551: Research and Thesis in Biomedical Engineering. 0-0-3. Preq., open to M.S. Graduate Students in Biomedical Engineering. Registration in any quarter may be for 3 semester hours credit or multiples thereof. Maximum credit allowed is six semester hours.

555: Practicum. 0-3-3 (6). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research techniques.

556: Biomedical Engineering Internship. 20-0-6. Preq., permission of instructor. Graduate level internship emphasizing application of engineering design principles in a research, health care or rehabilitation setting.

560: Rehabilitation of Persons with Physical Disabilities. 0-3-3. Preq., permission of instructor. Study of physical disabilities and the rehabilitation process.

561: Devices and Equipment for Rehabilitation. 0-3-3. Coreq., Biomedical Engineering 560. Study of assistive devices and the equipment used in rehabilitation.

562: Rehabilitation Engineering I. 3-2-3. Preq., Biomedical Engineering 560. Assessment and the development of engineering solutions in rehabilitation. Emphasis on seating and positioning, mobility, work, and activities of daily living.

563: Rehabilitation Engineering II. 3-2-3. Preq., Biomedical Engineering 560. Assessment and the development of engineering solutions in rehabilitation. Emphasis on transportation and augmentative communication.

564: Rehabilitation in the Aging. 0-3-3. Preq., permission of instructor. Application of rehabilitation philosophy and approaches to the needs of the aging person.

570: Artificial Intelligence Applications in Biomedical Engineering. 0-3-3. Preq., Prior introduction to artificial intelligence fundamentals. Artificial intelligence and expert systems application in medical and biomedical problems. Fundamental contributions of medical expert systems.

575: Artificial Neural Networks. 0-3-3. Presentation of foundational concepts and constructs used to analyze and characterize artificial neural networks paradigms, their attributes, their applications and their implementations.

580: Bioelectromagnetics. 0-3-3. Preq., graduate standing in engineering or physics. Survey of actions of electromagnetic fields on biological systems. Diagnostic and therapeutic applications, mechanisms, exposure guidelines.

599: Graduate Seminar. 0-1-1. (Pass/Fail). Issues in graduate education. Presentations of current topics in research, teaching, and practice. May be repeated for credit. F, W, Sp.

651: Special Topics: Research. 0-0-3. Preq., open to Ph.D. candidates in Biomedical Engineering who have not completed their academic language and General Comprehensive Examination requirements. This course represents a limited research project which will lead to a comprehensive and well-designed dissertation research proposal. A grade will be submitted at the end of each quarter for this course.

BUSINESS COMMUNICATION

305: Communication. 0-3-3. Preq., English 102. 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. F,W,Sp.

435: User Interfacing. 0-3-3. Preq., junior standing. The unique interpersonal skills of a system analyst are explored throughout the life cycle of a system development. 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.

620: Business Research Methods. 0-1-1. A study of research methodology used in business administration, a review of research completed in respective DBA areas, and the development of a dissertation proposal. (May be repeated for a total of 3 hours credit.)

BUSINESS LAW

255: Legal Environment of Business. 0-3-3. Studies relations and effect of law on business, society, and the individual, including ethical considerations, history, court system, torts, government regulation, contracts, and business organization. F, W, Sp.

356: Commercial Law. 0-3-3. A study of specific topics of law essential to the business decision-making process. Areas of law covered include contracts, commercial paper, agency, and sales. F, W, Sp.

410: Business Law for Accountants. 0-3-3. Preq., Business Law 255 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 255. Estates in land, titles, deeds, mortgages, leases, land contracts, minerals, easements and successions. W, Sp.

445: Legal Aspects of Government and Business. 0-3-3. Preq.,Business Law 255 or special permission of the instructor. A study of landmark law cases with special emphasis placed on guideline interpretive decisions of significance to management. F.

CHEMICAL ENGINEERING

100: Introduction to Chemical Engineering. 3-0-1. An introduction to the Chemical Engineering Department, curriculum, and the profession. F.

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. F.

203: Computer Applications. 0-2-2. Preq., Chemical Engineering 202 or consent of instructor. Introduction to the application of special and general purpose application-oriented software in the engineering communications/decision processes. W.

210: Chemical Engineering Materials. 0-3-3. Preq., Chemistry 250. Applications of chemistry to the properties of materials and their environmental stability with emphasis on polymers, electronic materials and electrochemical corrosion. Sp.

254: Laboratory Measurements and Report Writing. 3-0-1. Preq., Chemical Engineering 202. A study of applied analytical and statistical procedures and measurement of process variables in chemical processing and an introduction to technical report writing. W.

304: Transport Phenomena. 0-3-3. Preq., Mathematics 350. Fundamental principles of energy, mass, and momentum transfer and transport processes. F.

313: Unit Operations-Design I. 0-3-3. Preq., Chemical Engineering 304 or consent of instructor. Design procedures for equipment and processes involving fluid flow, fluid mixing and heat transfer, with emphasis on computer assisted design techniques. W.

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. Cross listed with Mechanical Engineering 331. F, W, Sp.

332: Chemical Engineering Thermodynamics. 0-3-3. Preq., Chemical Engineering 321 or 331 or Mechanical Engineering 331. Estimation of thermodynamic properties from equations of state. Application of thermodynamic equilibria to physical and chemical equilibria. Energy analysis of processes. F.

353: Chemical Engineering Junior Laboratory. 3-0-1. Preq., Chemical Engineering 254 and 313, and English 303. Laboratory

study of fluid phenomena, heat transfer processes and equipment, and evaporation. Sp.

401: Unit Operations; Mass Transfer. 0-3-3. Preq., Chemical Engineering 313 and 322, Chemistry 311. Quantitative problems to develop the principles and applications of humidification, diffusion, distillation, absorption and extraction.

402: Chemical Reaction Engineering. 0-3-3. Preq., Chemistry 312 or consent of instructor. Homogenous and heterogeneous chemical reaction kinetics, applications to ideal and real reactor types. F. *

407: Instrumentation and Automatic Process Control. 3-2-3 Preq., senior standing in engineering. Survey of process instrumentation methods, and the analysis and design of feedback, feed forward, and cascade control systems. W. *

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. *

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.

411: Chemodynamics. 0-3-3. Preq., senior standing. A study of the modeling and prediction of the movement and fate of synthetic chemicals in the air-water-earth environments. Cross-listed with Civil Engineering 411. *

413: Unit Operations-Design II. 0-3-3. Preq., Chemical Engineering 313 or consent of instructor. Application of design procedures to equipment and processes involving evaporation, distillation, leaching, extraction, gas absorption and desorption, humidification, drying and adsorption, with emphasis on computer assisted design techniques. Sp.

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.

415: Theory and Practice of Radiation Protection and Shielding. 0-3-3. Preq., senior standing. An introduction to principles of dosimetry. The concepts of probability of causation, risk assessment, and methods of establishing exposure limits will be discussed. *

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.

421: Nuclear 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.

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. F.

430: Chemical Plant Design. 0-2-2. Preq., Economics 215. An introduction to applied process economics and to process hazards, their identification and reduction. 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. W.

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. *

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.

443: Air Pollution Control Design. 0-3-3. Preq., Senior standing in Engineering or consent of instructor. An overview of the air pollution problem. Design of devices to control emissions (VOC's, NOx, SO2, participates, etc.) Cost estimation of air pollution control systems. *

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. F, W, Sp. *

451: Senior Chemical Engineering Laboratory. 6-0-2. Preq., Chemical Engineering 413 or consent of instructor. Laboratory work in humidification, drying, distillation, absorption, extraction, and kinetics. F.

452: Special Projects Laboratory. 1 hour credit. 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. F, W, Sp.

455: Biochemical Engineering. 0-3-3. Preq., Chemical Engineering 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 455. *

456: Hazardous Waste Management. 0-3-3. Preq., senior standing. A study of the legislation, regulation, technology, and business matters relating to hazardous waste management. *

475: Combustion, Fires and Explosions. 0-3-3. Preq., senior standing. Nature of combustion, controlled and free burning fires, and evaluation of explosion hazards. *

501: Advanced Unit Operations. 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.

513: Transport Phenomena. 0-3-3. 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.

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.

521: Exergy Analysis of Industrial Processes. 0-3-3. Preq., An undergraduate course in thermodynamics. The application of the concept of exergy, or energy availability, to the systematic analysis of processes and plants to make most efficient use of limited energy resources.

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.

524-525-526: Seminar. 0-1-1 each. Surveys, investigations, and discussions of current problems in chemical engineering.

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. F, W, Sp.

551: Research and Thesis in Chemical Engineering. Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six semester hours. F, W, Sp.

555: Practicum. 0-3-3 (6). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research techniques.

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., Mathematics 110 or 111. Fundamental principles of chemistry. F,W,Sp.

101: General Chemistry. 0-2-2. Preq., Chemistry 100. Continuation of Chemistry 100. F, W, Sp.

102: General Chemistry. 0-2-2. Preq., Chemistry 101. Continuation of Chemistry 101.F,W,Sp.

103: General Chemistry Laboratory. 4 1/4-0-1. Coreq., Chemistry 101. Laboratory practice in general chemistry. F,W,Sp.

104: General Chemistry Laboratory. 4 1/4-0-1. Preq., Chemistry 103. Continuation of Chemistry 103. F, W, Sp.

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 Chemistry. 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.

132: An Introduction to Biochemistry. 0-3-3. 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.

133: Chemistry Laboratory. 4-0-1. Preq., Chemistry 130. Basic laboratory experiments in inorganic, organic, and biochemistry.

205: Analytical Chemistry. 4 1/4-3-4. Preq., Chemistry 102. Theory and practice of analytical Chemistry. F.

250: Organic Chemistry. 0-2-2. Preq., Chemistry 102. Introduction to organic chemistry with emphasis on structure and reactivity of aliphatic hydrocarbons and alkyl halides. F. Sp.

251: Organic Chemistry. 0-2-2. Preq., Chemistry 250; Coreq., Chemistry 253. Continuation of Chemistry 250 with emphasis on aromatic hydrocarbons, alcohols, aldehydes, ketones, and related reaction mechanisms and spectroscopy.

252: Organic Chemistry. 0-2-2. Preq., Chemistry 251; Coreq., Chemistry 254. Continuation of Chemistry 251 with emphasis on carbonyl compounds, aliphatic and aromatic amines, phenols, carbohydrates and related reaction mechanisms. Sp.

253: Organic Chemistry Laboratory. 4 1/4-0-1. Preq., Chemistry 102; Coreq., Chemistry 251. Selected experiments emphasizing both laboratory operations and related basic principles and mechanisms. W.

254: Organic Chemistry Laboratory. 4 1/4-0-1. Preq., Chemistry 253; coreq., Chemistry 252. Introduction to multistep organic syntheses and related reaction mechanisms. Sp.

281: Inorganic Chemistry. 4 1/2-2-3. Preq., Chemistry 102 and 104. Introduction to inorganic chemistry, including a systematic study of the periodic table with emphasis on structure, properties and reactivity of the elements of inorganic compounds. W.

301: Introductory Physical Chemistry. 0-3-3. Preq., Chemistry 102 and Mathematics 112. An introduction to physical chemistry, with emphasis on properties of gases, thermodynamics, chemical equilibrium, ionic equilibria, chemical kinetics, and molecular spectroscopy.

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 gases, chemical thermodynamics, phase equilibria, and molecular spectroscopy. F.

312: Physical Chemistry. 0-3-3. Preq., Chemistry 311. Basic theories of chemistry with emphasis on chemical kinetics, electrochemistry, quantum theory, and statistical thermodynamics. W.

313: Physical Chemistry Laboratory. 4 1/4-0-1. Coreq., Chemistry 311. Laboratory experiments in physical chemistry. F.

314: Physical Chemistry Laboratory. 4 1/4-0-1. Preq., Chemistry 311; coreq., Chemistry 312. Continuation of Chemistry 313. W.

351: Biochemistry. 0-3-3. Preq., Chemistry 252, 254. The chemistry of biologically important compounds including fats, carbohydrates, proteins, enzymes, vitamins, and hormones. F.

352: 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 basic research procedures.F

354: Biochemistry Laboratory. 4 1/4-0-1. Preq., Chemistry 351 and Chemistry 353. Techniques applicable to current biochemistry with emphasis on metabolism and molecular biology. W.

381: Intermediate Organic Chemistry. 4 1/2-2-3. Preq., Chemistry 252 and 254. Introduction to designing organic synthesis with emphasis on the synthon approach, information retrieval, synthesis of Grignard reagents, and organic qualitative analysis. F.

409: Advanced Organic Chemistry. 0-3-3. Preq., Chem. 381 and 312. Introduction to theoretical organic chemistry with emphasis on carbocation chemistry and pericyclic reactions. Sp.

420: Chemical Thermodynamics. 0-3-3. Preq., Chemistry 312. An introduction to chemical thermodynamics.

424: Advanced Physical Chemistry. 0-3-3. Chemistry 312 or Physics 410 and Mathematics 350. A continuation of Chemistry 311-312, including an introduction to quantum chemistry, and a quantum mechanical approach to the study of the structure of atoms and molecules.

466: Instrumental Analysis. 8 1/2-2-4. Preq., Chemistry 312. Theory and practice of optical methods of analysis, advanced electrical techniques, and modern separation methods. Sp. *

470: Methods, Materials and Activities for Teaching Chemistry. 0-3-3. Preq., Chemistry 102 and instructor permission. A course especially designed for the high school chemistry instructor.

471: Methods, Materials and Activities for Teaching Chemistry. 4 1/2-3-4. Preq., Chemistry 102 and instructor's permission. A continuation of Chemistry 470.

481: Advanced Inorganic Chemistry. 4 1/2-2-3. Preq., Chemistry 252, 312. An advanced study of the periodic classification of elements, their reactions, and other inorganic principles. Sp. *

490: Chemistry Seminar. 0-1-1-3. Preq., Senior or graduate standing. Required of chemistry graduate students. Supervised organization and presentation of topics from the chemical

literature. F, W, Sp.

498: Undergraduate Research. 1-3 (6) hours credit. Preq., consent of instructor. Introduction to methods of research and completion of a basic research problem.

501: Physical Organic Chemistry. 0-3-3. Preq., Chemistry 409. An advanced study of the mechanisms of organic methodology used in their investigations, and organic quantum chemistry.

502: Selected Topics in Organic Chemistry. 0-3-3 (6). Preq., Chemistry 409. Areas covered will vary; however they will generally include advanced organic synthesis and related structure identification with emphasis on spectroscopic techniques.

520: Molecular Spectroscopy. 0-3-3. Preq., Chemistry 312. The relationship between molecular spectra and molecular structure.

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 410. Physical and chemical applications of quantum theory.

555: Special Topics in Biochemistry. 0-3-3 (9). Preq., Chemistry 352. Topics covered will vary and may include toxicology and clinical biochemistry.

556: Protein Chemistry. 0-3-3. Preq., Chemistry 351. The chemical nature and physiology of both structural and metabolic proteins.

583: Advanced Analytical Chemistry. 0-3-3. Preq., Chemistry 466. 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. An introduction to design concepts. F.

101: Civil Engineering Visualization and Computers. 3-0-1. Hand-sketching. Visualization. Computer-aided drafting for civil engineers. Introduction to microcomputer applications. F, W, Sp.

254: Plane Surveying. 4-2-3. Preq., Mathematics 112. Theory, field measurements, and computation, and error analysis associated with land, traverse, and topographic surveys. Sp.

291: Civil Engineering Computations. 3-1-2. Preq., Mathematics 230. Application of microcomputers in civil engineering. Numerical techniques and statistical applications, personal productivity tools, application software. W, Sp.

300: The Civil Engineering Profession. 0-3-3. Preq., Sophomore standing. Open only to civil engineering students. The civil engineering profession and its effect on society. History and heritage, current professional practices and techniques, concepts and challenges for the future. F.

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. Sp.

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.

310: Hydrology. 0-3-3. 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. 3-2-3. Preq., English 303, Chemistry 104, Engineering Mechanics 321. Introduction to the unit operations and processes most often encountered in water and waste treatment. F.

324: An Introduction to Soils Engineering. 4-1-2. Preq., English 303, Engineering Mechanics 311, Geology 217. Introduction to soil mechanics and its application to civil engineering. A presentation of soil properties and characteristics pertinent to an evaluation of various engineering situations, problems and designs. W.

325: Introduction to Foundation Engineering. 0-2-2. Preq., Civil Engineering 324. Introduction to foundation engineering. Consideration of bearing capacity, settlement, slope stability, and foundation design requirements. Spread footings, beams, mats and retaining walls, deep foundations. Sp.

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., Statistics 320. Introduction to transportation facilities; urban transportation planning; land, air, and water transportation facilities; future developments in transportation. W.

346: Theory of Simple Structures. 0-2-2. Preq., Engineering Mechanics 311 and Engineering 102. Shear and bending moment diagrams, truss analysis, influence lines, moving loads, three-moment equation, moment distribution. W.

355: Advanced Surveying. 4-2-3. Preq., Civil Engineering 254 (Civil Engineering 291 recommended) Advance error propagation theory, including an introduction to least squares. Various horizontal/vertical high precision surveys; geodetic concepts and surveys; Global Positioning Systems. F.

357: Engineering and Construction Surveying. 4-1-2. Preq., Civil Engineering 254. Horizontal/vertical curves; earthwork; topographic/planimetric surveys for map/drawing construction; engineering use of State Plane Coordinate System; surveys for buildings, pipelines, and others. F.

391: Hydraulics. 4-2-3. Preq., Engineering Mechanics 321, English 303. Elements of flow in open channels and in pipelines; general fluid mechanics laboratory; fluid measurements; and hydraulic models. Sp.

410: Air Pollution Fundamentals. 0-3-3. Preq., Senior standing in an engineering curriculum, or consent of instructor. History of air pollution legislation, sources, and effects of major air pollutants, and predictive capabilities with regard to air pollution. *

411: Chemodynamics. 0-3-3. Preq., senior standing. A study of the modeling and prediction of the movement and fate of synthetic chemicals in the air-water-earth environments. Cross-listed with Chemical Engineering 411.

412: Environmental Impact Analysis. 0-3-3. Preq., Senior standing in Civil Engineering or the consent of the instructor. Definition and quantification of environmental impact. Types of environmental impact studies.

414: Bituminous Mixture Design. 3-2-3. Preq., Civil Engineering 302. Selection of binders and aggregates for mixture design processes. Methods include Marshall, Hveem and SUPERPAVE. Laboratory mixes will be designated and tested.

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. *

421: Portland Cement Concrete. 0-3-3. Preq., Civil Engineering 302 or consent of instructor. Production, testing, uses, and performance of portland cement and portland cement concrete (PCC). Detailed investigation into PCC components. Admixtures and special concretes. *

422: Geometric Design. 0-3-3. Preq., Civil Engineering 332. Functional design of highways, railroads and runways with emphasis on safety and efficiency of flow set intersections, curves, and interchanges. *

423: Introduction to Asphalt Technology. 3-2-3. Preq., Civil Engineering 302, or consent of instructor. Production and uses of asphalt; measurement and significance of laboratory properties including viscosity, penetration, flash point, ductility, solubility, thin film oven test and specific gravity. *

424: Seminar. 0-1-1. Preq., Senior standing. Reading and discussion of assigned papers, informal talks by instructors and professional engineers, debates on matters of current interest. F, 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 Pavements. 0-3-3. Preq., Civil Engineering 324. Flexible and rigid pavement types. Factors affecting stresses and strains in pavement layers. Design criteria and structural design methods for highway pavements. *

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. W. *

437: Contracts and Specifications. 0-2-2. Preq., junior standing or consent of instructor. Legal documents of construction contracts. *

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. *

439: Construction Planning, Contracts and Specifications. 0-3-3. Preq., Engineering 401, senior standing or consent of instructor. Study of methods for planning, estimating, and controlling projects. Construction contracts, specifications and cost impacts. Individual term project required. Team efforts on problems and case studies. F. *

440: Foundation Engineering. 0-3-3. Preq., Civil Engineering 325 or consent of instructor. Theory and applications in foundation engineering design; application of soil mechanics. *

443: Analysis of Continuous Structures. 0-3-3. Preq., Civil Engineering 291, 346; Slope-deflection, moment distribution plastic design, matrix applications, STRUDL language. Sp.

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, and footings using the strength design method. F.

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. F,W,Sp.

456: Legal Aspects of Boundary Surveying. 0-3-3. Preq., Civil Engineering 254 or consent of instructor. Legal aspects of various boundary systems. Legal principles of boundary surveys: common statute law, written/unwritten rights and rules of evidence, property descriptions/layout. W.

457: Practical Surveying. 40-0-3. Preq., Civil Engineering 355, 357, or 456. An on-the-job training program; student is employed by registered professional surveyor for 300 working hours (minimum); work to be approved by department head.

458: Introduction to Geographic Information Systems. 0-3-3. Preq., Civil Engineering 291 and senior standing, or approval of instructor. Basic principles, functions, and engineering applications of spatial information systems; introduction to databases. Team case studies using GIS software. W. *

459: Introduction to Infrastructure Management. 0-3-3. Preq., Civil Engineering 291. Lifecycle approach to planning, designing, and managing infrastructure (highways, streets, utilities); infrastructure decision support systems; performance measures and prediction; computer applications; case studies. *

464: Advanced Design of Concrete Structures. 0-3-3. Preq., Civil Engineering 444. Advanced topics in the design of reinforced and prestressed concrete structures. *

465: Steel Design and Theory. 0-2-2. Preq., Civil Engineering 346. Fundamental elastic design of steel structures. Use of codes and specifications for steel design. F.

466: Advanced Structural Design. 0-3-3. Preq., Civil Engineering 465. Advanced topics in the design of steel and timber structures. Load and resistance factor design. W. *

468: Computational Structural Design. 0-3-3. An introduction to the use of computational techniques for designing structures. Finite element method. Structural optimization. F.

492: Civil Engineering Design I. 3-0-1. Preq., Engineering 401, consent of instructor. Open-ended design problems typical of those encountered in the Civil Engineering profession and calling for the integration of geotechnical, structures, transportation and water resources. F, W.

493: Civil Engineering Design II. 3-0-1. Preq., Coreq., Civil Engineering 492. A continuation of Civil Engineering 492. W, Sp.

494: Civil Engineering Design III. 3-0-1. Preq., Civil Engineering 492; Coreq., Civil Engineering 493. A continuation of Civil Engineering 493. W, Sp.

495: Computer-Aided Civil Engineering Design. 4-2-3. Preq., Senior standing in Civil Engineering or consent of instructor. Integration of computers in civil engineering design applications. Emphasis is on design methodologies. Specific software applications vary. *

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.

508: Finite Element Analysis. 0-3-3. Preq., Consent of instructor. Linear and nonlinear finite element analysis of continual and discretized structures; use of finite element computer programs to solve typical structural problems.

509: Dynamic Analysis of Structures. 0-3-3. Preq., Mathematics 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.

512: Design of Deep Foundations. 0-3-3. Preq., Civil Engineering 440. Analysis and design of pile foundations, drilled shafts, piers and sheeting support systems.

514: Bituminous Mixture Design. 3-2-3. Preq., Civil Engineering 302. Selection of binders and aggregates for mixture design processes. Methods include Marshall, Hveem and SUPERPAVE. Laboratory mixes will be designed and tested.

517: Advanced Pavement Design. 0-3-3. Preq., Civil Engineering 427 or consent of instructor. Traffic and loading considerations for airfield pavements. Structural design methods for highway and airfield pavements, with emphasis on computerized design and analysis techniques.

519: Techniques for Pavement Rehabilitation. 0-3-3. Evaluation of roadway distress, roughness, friction, drainage and structural surveys will be discussed. Survey results used to identify cost-effective techniques for pavement rehabilitation.

520: Productivity Improvement in Construction. 0-3-3. Field data acquisition techniques and evaluation procedures for factors that

affect productivity on construction projects.

521: Design of the Construction Process. 0-3-3. Construction site dynamics and resource interaction are modeled and analyzed.

522: Design of Temporary Structures. 0-3-3. Advanced topics in the design of temporary structures required for complex construction projects.

527: Statistical Methods in Hydrology. 0-3-3. Preq., Civil Engineering 310. Frequency analysis, extreme value distribution, error analysis, and multiple regression analysis associated with making engineering decisions using hydrologic data.

630: 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.

531: Contaminant Transport. 0-3-3. Preq., Civil Engineering 314, 310, Engineering Mechanics 321 or consent of instructor. Mathematical modeling of contaminant transport in surface and groundwater systems.

536: Wastewater Disposal Systems. 3-2-3. Preq., Civil Engineering 314. Advanced problems in design of domestic and industrial waste treatment systems.

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.

551: Research and Thesis in Civil Engineering. Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six semester hours.

555: Research and Communications Seminar. 0-3-3. Preq., 12 semester hours of graduate work. Oral and written communication of literature search.

560: Transportation Systems Planning. 4-2-3. Preq., Civil Engineering 332. A study of transportation systems as they affect travel behavior of a populace and the location of economic activities.

561: Traffic Engineering Characteristics. 0-3-3. Preq., consent of instructor. Traffic laws, ordinances, and control devices; intersection characteristics, pretimed control, traffic actuated control, arterial and network progression.

564: Feasibility Analysis of Transportation Systems. 0-3-3. Preq., consent of instructor. Goals, objectives and criteria used for decision making for transportation investments; economic analysis and treatment of intangibles and risk; non-users impact analysis.

577: Advanced Structural Mechanics. 0-3-3. Theory of elasticity, energy methods, nonlinear theory and structural stability. W.

578: Applications of Nonlinear Finite Element Analysis to Civil Engineering Problems. 0-3-3. Preq., Civil Engineering 508 or consent of instructor. Application of the theory of the finite element method to nonlinear problems in Civil Engineering.

579: Advanced Structural Dynamics. 0-3-3. Advanced studies of the dynamic response of structures including experimental, analytical and computational procedures. Particular emphasis is given to Civil Engineering applications with a consideration of multiple degrees-of-freedom and continuous systems.

599: Graduate Seminar. 0-1-1. Issues in graduate education. Presentations of current topics in research, teaching and practice. May be repeated for credit. Pass/Fail. F, W, Sp.

CIVIL TECHNOLOGY

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. W, every other year.

345: Construction Blueprint Reading. 4-1-2. Blueprints for heavy timber, steel, and reinforced concrete construction in both residential and commercial-type buildings are presented for the extraction of information necessary for construction process planning. Reading and interpretation of typical highway and bridge plans. F, every other year.

372: Structural Mechanics and Analysis. 0-3-3. Preq. Engineering Mechanics 207. Theory of the mechanics of structural analysis and design. Not open to Civil Engineering majors. F.

373: Construction Materials. 4-2-3. Preq., English 303 and Engineering Mechanics 207. Mechanical behavior of engineering materials, determination of strength and other properties of materials, and construction applications. W, every other year.

424: Seminar. 3-0-1. Preq., senior status. Reading and discussion of assigned papers, presentation of current issues in construction, and discussions with professional construction personnel. F, Sp.

471: Reinforced Concrete and Foundation Design. 0-3-3. Preq., Civil Technology 372. Analysis and design of reinforced concrete structures, slabs, footings, caissons and pile foundations. Not open to Civil Engineering majors. W.

473: Design of Structures. 3-2-3. Preq., Civil Technology 372. Design of elementary structures in timber and steel. Sp.

475: Soils in Construction. 0-3-3. Preq., Civil Technology 210 and Engineering Mechanics 207. The nature of soils, earthwork in construction and soils testing methods. F, every other year.

476: Formwork Design. 4-0-1. Preq., Civil Technology 473. Design and selection of formwork and shoring for concrete construction. Sp, every other year.

CLINICAL LABORATORY SCIENCE

110: Orientation. 0-1-1. An interdisciplinary approach is taken in an introduction to health care, to career opportunities, to professional ethics, and to curricular content. F.

242: Histological Sectioning. 8 1/2-0-2. Preq., Biological Sciences 124 or equivalent. Methods of preparing tissues for microscopic examination.

245: Clinical Analysis. 4 1/4-3-4. Preq., Biological Sciences 245 and Chemistry 104. Study of the laboratory methods used to evaluate the physiochemical state of the body, including a computer assisted approach to laboratory mathematics and quality assurance.

341: Hematology. 4 1/2-2-3. Preq., Biological Sciences 124. 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., Biological Sciences 120. 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.

445: Immunohematology. 3-1-2. Preq. Bacteriology 412 or consent of instructor. Principles of donor screening, immunological testing for compatibility, tests for infectious agents and record keeping associated with transfusion medicine. *

446: Instrumentation. 3-2-3. Preq. 12 SCH of biological or chemical sciences. Emphasizes the operational theory, use, and maintenance of instruments appropriate to biological investigation through didactic and laboratory exercises. *

447: Principles of Pharmacology. 0-3-3. Preq. 12 SCH of biological and/or chemical sciences. The classification, modes of action, and therapeutic utility of common pharmacological

agents are described. *

449: Biological and Clinical Applications of Radioisotopes. 8 1/2-0-2. Preq., Chemistry 104 and Physics 209. 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. 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 Laboratory Science 453, 455 and 456 are completed. 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 branches of medical technology. Credit will not be given until Clinical Laboratory Science 453, 454 and 456 are complete. 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 Laboratory Science 453, 454, 455. F, W, Sp.

460: Clinical Hematology. 2-6 semester credit hours. Preq., consent of instructor. Advanced concepts in the theory, application and medical interpretation of hematological and hemostatic mechanisms and methods. *

461: Clinical Hematology Laboratory. 1-5 semester credit hours. Preq., consent of instructor. Instruction and laboratory practice in the development and use of advanced analytical procedures and instrumentation in clinical hematology and hemostasis. *

462: Clinical Serology and Immunology. 1-4 semester credit hours. Preq., consent of instructor. Advanced concepts in the theory, application and medical interpretation of serological and immunological mechanisms and methods. *

463: Clinical Serology and Immunology Laboratory. 1-4 semester hours credit. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of serological and immunological procedures. *

464: Clinical Bacteriology. 2-5 semester credit hours. Preq., consent of the instructor. Advanced concepts in the use and interpretation of medical bacteriological procedures and data. *

465: Clinical Bacteriology Laboratory. 3-6 semester credit hours. Preq., consent of the instructor. Instruction and laboratory practice in the development and use of advanced analytical procedures and instrumentation in clinical bacteriology. *

466: Clinical Immunohematology. 1-4 semester credit hours. Preq., consent of the instructor. An advanced study of the principles of immunohematology necessary to provide a patient with a safe blood transfusion. *

467: Clinical Immunohematology Laboratory. 1-4 semester credit hours. Preq., consent of instructor. Practical instruction and laboratory practice in immunohematological procedures utilized in a hospital blood bank. *

468: Clinical Chemistry. 3-6 semester credit hours. Preq., consent of the instructor. Advanced concepts in the theory application, and medical interpretation of clinical biochemical mechanisms and methods. *

469: Manual Clinical Chemistry Lab. 1-3 semester credit hours. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of manual clinical chemistry procedures. *

470: Special Clinical Chemistry Laboratory. 1-3 semester credit hours. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of special clinical chemistry procedures. *

471: Automated Clinical Chemistry Lab. 1-2 semester credit hours. Preq., consent of instructor. Practical instruction and lab practices in the performance of automated clinical chemistry procedures. *

472: Clinical Chemistry Toxicology Laboratory. 1-2 semester credit hours. Preq., consent of instructor Practical instruction and laboratory practice in the performance of toxicological procedures. *

473: Clinical Chemistry Radioimmunoassay Laboratory. 1 semester credit hour. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of radioimmunoassay procedures. *

474: Clinical Urinalysis. 1-3 semester credit hours. Preq., consent of instructor. Advanced concepts in the use and interpretation of urinalysis procedures and data. *

475: Clinical Urinalysis Laboratory. 1-3 semester credit hours. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of urinalysis procedures. *

476: Clinical Parasitology, Mycology and Mycobacteriology. 1-2 semester credit hours. Preq., consent of instructor. Advanced concepts in the use and interpretation of procedures and data in clinical parasitology, mycology, and mycobacteriology. *

477: Clinical Parasitology, Mycology and Mycobacteriology Laboratory. 1-2 semester credit hours. Preq., consent of instructor. Instruction in laboratory practice in the development and use of advanced analytical procedures in clinical mycology, parasitology, and mycobacteriology. *

478: Clinical Laboratory Administration. 1-2 semester credit hours. Preq., consent of instructor. Modern management concepts for the clinical laboratory. *

479: Clinical Histopathology. 1-5 semester credit hours. Preq.,consent of instructor. Advanced concepts in the use and interpretation of histotechnological procedures and findings.

480: Clinical Medical Technology Problems. 1-8 semester credit hours. Preq., consent of instructor. An introduction to emerging medical technologies.

483: Clinical Parasitology. 1-2 semester credit hours. Identification, clinical significance, and methods of prevention of parasitic infections. *

484: Clinical Parasitology Laboratory. 1-2 semester credit hours. Instruction and laboratory practice in the development and application of medical parasitology laboratory methods. *

485: Clinical Mycology. 1-2 semester credit hours. Identification, clinical significance and methods of prevention of mycotic infection. *

486: Clinical Phlebotomy and Specimen Procurement. 103 semester credit hours. Preq., consent of instructor. Instruction and laboratory practice in phlebotomy and the collection of other specimens for clinical analysis. Specimen preservation and safe lab practices are included. *

487: Clinical Hemostasis. 1-4 semester hours credit. Preq. consent of instructor. The theory of the coagulation cascade, analytical procedures which monitor this process and the clinical significance of coagulopathies are discussed. *

488: Clinical Hemostasis Laboratory. 1-4 semester hours credit. Laboratory procedures which assess the coagulation cascade and related processes. *

489: Clinical Chemistry Laboratory. 3-8 semester hours credit.

Practical instruction and laboratory practice in clinical chemistry procedures, including associated instrumental analysis. *

COMPUTER ENGINEERING

100: Introduction to Computer Engineering. 3-0-1. A survey of computer engineering topics to introduce the student to the profession, the department, and the curriculum. F.

402: Computer Engineering Design. 6-1-3. Preq., Senior standing, Electrical Engineering 443. Computer Engineering design problems requiring integration of hardware and software elements addressing current issues. W, Sp.

405: Seminar. 0-1-1. Preq., Senior standing. Technical exchange of recent ideas using current literature. Discussion of professional development and continuing education. F, Sp.

406: Computer Engineering Design I. 3-1-2. Preq., Computer Engineering 463, Electrical Engineering 329, 443. Design problems requiring the integration of circuits and digital electronics. F,W,Sp.

407: Computer Engineering Design II. 3-1-2. Preq., Computer Engineering 406. Continuation of Computer Engineering 406 with emphasis on fabrication and test specifications. F,W,Sp.

421: Artificial Intelligence I. 0-3-3. Preq., Electrical Engineering 331 and senior or graduate standing or permission of instructor. Introduction to artificial intelligence and the symbolic programming language, LISP.

422: Artificial Intelligence II. 0-3-3. Preq., Computer Engineering 421 or permission of instructor. Applications in artificial intelligence and the symbolic programming language, LISP.

423: Expert Systems. 0-3-3. Preq., senior or graduate standing with permission of instructor. Introduction to expert and knowledge base systems.

453: Software Engineering. 0-3-3. Preq., Computer Science 350, Electrical Engineering 331. Software engineering design and integration of real-time hardware, multi-tasking, multi-user systems, process management, memory management and date facilities. F.

460: Computer Systems and Architectures. 0-3-3. Preq. Computer Engineering 453, or consent of instructor. Interaction of systems components and information processing. W.

463: Logic Design and Input/Output Devices. 0-3-3. Preq., Electrical Engineering 331 or consent of instructor. Top-Down logic design, realizable logic using SSI, MSI and programmable devices, sequential logic, synchronous and asynchronous sequential logic. W.

464: Computer Networks. 0-3-3. Preq., Computer Engineering 453 or consent of instructor. Computer networking, data communication, software/hardware requirement for network design. W.

COMPUTER SCIENCE

100: Overview of Computer Science. 0-3-3. Preq., Mathematics 110 or equivalent. An overview of the field of computing; history, impact on society, and current trends; together with an introduction to operating systems, editors, and rudimentary programming.

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.

109: Computer Programming. 0-3-3. (cannot be taken for credit toward any Computer Science degree) Fundamentals of computer programming. Emphasis is placed on problem analysis, algorithm development, and data and control structures.

120: Introduction to Computer Programming. 0-3-3. Preq., Computer Science 100 or equivalent and Mathematics 111. An introduction to program development. Emphasis is placed on problem analysis, algorithm development, data and control structures.

210: Discrete Mathematics for Computer Scientists. 0-3-3. Preq., Computer Science 120 and Mathematics 112. An overview of the mathematical foundations of computing. Topics include sets, symbolic logic, relations, functions, combinatorics, induction, trees, graphs, and Boolean algebra.

220: Data Structures. 0-3-3. Preq., Computer Science 120. The definition, representation, and manipulation of basic data structures such as arrays, stacks, queues, trees, and graphs. Practical applications of these structures will be emphasized.

230: Software Design. 0-3-3. Preq., Computer Science 220. Design, construction and maintenance of large software systems. Topics include project planning, requirements analysis, software design methodologies, software implementation and testing, maintenance.

240: Introduction to Concurrent Programming. 0-3-3. Preq., Computer Science 220. Fundamentals of concurrent, parallel, and distributed computing. Topics include semaphores, monitors, rendezvous, remote procedure calls, and asynchronous message passing, SIMD model, MIMD architectures.

251: Computer Organization and Assembly Language. 0-3-3. Preq., Computer Science 220, Coreq., Computer Science 265 or Electrical Engineering 231. Introduction to computer organization and operation, data representation and manipulation, assembly language programming, register level operations, peripheral device interfaces.

265: Introduction to Digital Design. 0-3-3. Coreq., Computer Science 269. Introduction to digital design techniques, Boolean algebra, combinational logic, minimization techniques, simple arithmetic circuits, programmable logic, sequential circuit design, registers and counters.

269: Digital Design Lab. 3-0-1. Coreq., Computer Science 265. Laboratory for digital design techniques, combinational and sequential logic design, registers and counters.

299: Cooperative Education Applications. 40-0-1 (7). Preq., Admission to the College of Engineering Cooperative Education Program. Pass-Fail.

310: Theory of Computing. 0-3-3. Preq., Computer Science 210. An overview of formal languages, the abstract models of computing capable of recognizing those languages, and the grammars used to generate them.

320: Modern Paradigms for Software Development. 0-3-3. Preq., Computer Science 220, 230. Specification, implementation, and verification of abstract data types; object-oriented design; generic packages; type hierarchies and inheritance; polymorphism; concurrency; large-scale software development.

325: Advanced Data Structures and Algorithms. 0-3-3. Preq., Computer Science 220. Advanced data structures and algorithm design. Topics include specialized trees, graphs, sets and tables, advanced searching and sorting, complexity analysis, and algorithm design techniques.

330: Programming Languages. 0-3-3. Preq., Computer Science 240, 325. Techniques for specifying the syntax and semantics of programming languages. Language concepts; execution environments; comparative analysis of programming languages.

345: Operating Systems. 0-3-3. Preq., Computer Science 240 & 365. An introduction to operating systems concepts. Topics include processor management, storage management, device management, performance, security, case studies of common operating systems.

402: Senior Design Project. 0-3-3. Preq., Computer Science 230 and written consent of instructor. Design of a system to solve a problem that requires integration of computer software and hardware concepts; team problem solving required.

419: Special Topics in Theory of Computing. 0-3-3. Preq., consent of instructor. Selected topics in the area of computing theory that are of current importance or special interest.

420: Design and Analysis of Algorithms. 0-3-3. Preq., Computer Science 325 or consent of instructor. Design and analysis of efficient algorithms. Topics include complex data structures,

advanced searching and sorting, algorithm design techniques, and complexity analysis.

425: Discrete Mathematics, Data Structures and Algorithms. 0-4-4. Preq., Consent of instructor (cannot be applied for credit toward any Computer Science degree). Mathematical foundations of computer science; definition, application and implementation of abstract data types; algorithm design and analysis techniques.

429: Special Topics in Software Development. 0-3-3. Preq., consent of instructor. Selected topics in the area of software design that are of current importance or special interest.

430: Database Management Systems. 0-3-3. Preq., Computer Science 325 or consent of instructor. Database concepts, organizations and applications; database management systems; implementation of a simple database. *

432: Software Engineering. 0-3-3. Preq., Computer Science 230 or consent of instructor. Tools and techniques available to aid in the development and maintenance of software systems. Topics include project planning, requirements engineering, design, verification, validation, and maintenance.

436: Compiler Design. 0-3-3. Preq., Computer Science 310, 330 or consent of instructor. Principles of compiler design; assembler design; lexical analysis; syntax analysis; automatic parser generations; error detection and recovery. *

437: Programming Language Paradigms and Software Development. 0-4-4. Preq., Computer Science 425 and consent of instructor (cannot be applied for credit toward any Computer Science degree). Imperative, functional, logical and object-oriented paradigms; programming language semantics and language translation; specification, design, implementation, validation, and maintenance of large software systems.

439: Special Topics in Programming Environments. 0-3-3. Preq., consent of instructor. Selected topics in the area of programming environments that are of current importance or special interest.

445: Architecture and Operating Systems; Parallel Computing. 0-4-4. Preq., Computer Science 425 and consent of instructor (cannot be applied for credit toward any Computer Science degree). Digital logic, instruction set architectures, microprocessor design; storage management, process synchronization and communications, device management; introduction to parallel architectures, languages and algorithms.

449: Special Topics in Operating Systems. 0-3-3. Preq., consent of instructor. Selected topics in the area of operating systems that are of current importance or special interest.

450: Computer Networks: 0-3-3. Preq., Computer Science 345 or consent of instructor. An overview of computer networks. Topics include network topologies, layers, local area networks, and performance measurement and analysis. *

462: Computer Architecture. 0-3-3. Preq., Computer Science 365 & 240. Architecture and organization of computer systems. Topics include the processor, control unit and microprogramming, computer arithmetic, memory hierarchy and memory management, input/output, instruction sets.

464: Advanced Digital Design. 0-3-3. Preq., Computer Science 265. Synchronous sequential circuits, FSM optimization and implementation, testing, level-mode sequential design, race and hazards, advanced ALU, programmable logic devices, CAD tools and HDLs.

466: Microprocessor Systems Design. 0-3-3. Preq., Computer Science 462. Microprocessor-based system design, bus design, memory systems, input/output interfacing and DMA, microprocessor-based laboratory project.

468: Introduction to VLSI. 0-3-3. Preq., Computer Science 265. VLSI design methodologies, fabrication and layout, combinational and sequential design in VLSI, subcell design, system design, advanced design techniques.

469: Special Topics in Computer Architecture. 0-3-3. Preq., consent of instructor. Selected topics in the area of computer architecture that are of current importance or special interest.

470: Computer Graphics. 0-3-3. Preq., Computer Science 325 or consent of instructor. Fundamentals of two and three dimensional computer graphics. Topics include line drawing, polygon rendering, clipping algorithms, two and three dimensional transformations, and projection techniques. *

472: Human-Computer Interface. 0-3-3. Preq., Computer Science 230 and 325. Theory, design, and implementation of graphical human-computer interface strategies. Topics include interface layout, visualizing knowledge, comparison of user interfaces, and hypertext/hypermedia.

475: Artificial Intelligence. 0-3-3. Preq., Computer Science 330 or consent of instructor. The design and implementation of artificially intelligent programs. Topics include game playing, heuristic search, logic, knowledge representation, and reasoning strategies. Social implications are also discussed. *

479: Special Topics in Computer Applications. 0-3-3. Preq., consent of instructor. Selected topics in the area of computer applications that are of current importance or special interest.

490: Applied Computing Project. 1-3 hours credit. Preq., junior standing in Computer Science or equivalent. Independent investigation of a problem in computing.

499: Special Topics in Computer Science. 0-3-3. Preq., consent of instructor. Selected topics of current importance or special interest.

505: Expert Systems. 0-3-3. Preq., Computer Science 475 or consent of instructor. Current topics in expert system design, knowledge acquisition, explanation generation and knowledge representation. A substantial expert system design, implementation and testing project is required.

510: Graduate Seminar. 0-1-1 (3). Preq., consent of instructor. Surveys, investigations, discussions, and presentations of current problems in computer science.

512: Programming Language Semantics. 0-3-3. Preq., Computer Science 310 or Computer Science 436 or consent of instructor. Syntax specification using attribute grammars and two level grammars, operational semantics, translational semantics, formal semantic techniques such as denotational semantics, algebraic specification, and axiomatic semantics.

520: Advanced Analysis of Algorithms and Complexity. 0-3-3. Preq., Computer Science 420 or consent of instructor. Formal analysis of time and space requirements of various algorithms, greedy algorithms, divide-and-conquer, dynamic programming, P and NP algorithms; Turing machines and unsolvability.

521: Advanced Computer Architectures. 0-3-3. Preq., Computer Science 462. Topics include: pipeline systems design, processor design techniques (concepts, analysis, performance comparison, implementation, commercial processors), memory system design, interconnection media.

524: Distributed Systems. 0-3-3. Preq., Computer Science 345 or consent of instructor. Overview of distributed processing and introduction to computer networks; issues involving processor communications, interconnections, software and system management.

530: Database Theory. 0-3-3. Preq., Computer Science 430 or consent of instructor. Data models, relational algebra and relational calculus, data dependencies and schema normalization, Datalog, recovery and concurrency control, distributed database environments.

531: Systems Programming. 0-3-3. Preq., Computer Science 345 or consent of instructor. Programmed control of resource allocation and scheduling; device and data control, multiprogrammed and multiprocessor configurations.

532: Advanced Topics in Software Engineering. 0-3-3. Preq., Computer Science 402 or Computer Science 432 or consent of instructor. Readings in requirements analysis, formal specification techniques, software design techniques, CASE tools, software metrics, software verification and validation, quality assurance and software safety.

534: Performance Measurement and Evaluation. 0-3-3. Preq., Computer Science 345 or consent of instructor. Computer systems performance; analysis techniques; data acquisition methods; simulation techniques; interpretation of results.

540: Systems Design. 0-3-3. Preq., Computer Science 402 or Computer Science 432 or consent of instructor. Design and implementation of information systems; post-implementation analysis and evaluation; documentation and technical reporting.

541: High Performance Computer Architecture. 0-3-3. Preq., Computer Science 462. Topics include: principles of scalable performance, multiprocessor system design, message passing systems, vector computers, data flow computers, and multithreaded architecture.

550: Special Problems. 1-4 semester hour credit. Individual research and investigation of a problem in computer science or computing practice.

551: Research and Thesis in Computer Science. Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six semester hours.

552: Data and Computer Communications. 0-3-3. Preq., Computer Science 450 or consent of instructor. Transmission media, signal encoding, link control, multiplexing. Communications networks. The OSI model and related protocols; ISDN.

554: Advanced Networking. 0-3-3. Preq., Computer Science 450 or consent of instructor. May be repeated with change in subject matter. Selected research topics of current interest in the field of computer communications and networks.

555: Practicum. 0-3-3 Maximum credit allowed is three semester hours. Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of a problem in computer science; technical literature survey required; development of a computer-based solution.

570: Advanced Topics in Computer Graphics. 0-3-3. Preq., Computer Science 470 or consent of instructor. Techniques used to produce realistic images of three-dimensional objects on computer graphics hardware. Topics include: reflection models, shading techniques, ray tracing, texture and animation.

575: Advanced Topics in Artificial Intelligence. 0-3-3. Preq., Computer Science 475 or consent of instructor. Advanced topics in artificial intelligence including: problem-solving systems, natural language understanding, intelligent tutoring systems, learning and neural networks.

581: Parallel Algorithms. 0-3-3. Preq., Computer Science 240. Models of parallel computers, basic communications operations, algorithms for searching, sorting, graph structures, and systolic systems, dynamic programming, performance and scalability of parallel systems.

582: Parallel Computational Methods. 0-3-3. Preq., Computer Science 240, Mathematics 415. Parallel implementations of FFT, interpolation, integration, Eigensystems, matrix maximization, ODEs, PDEs.

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. *

401: Student Personnel Services. 0-3-3. A study of student personnel programs in colleges and universities. This course may not be taken for graduate credit.

460: 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. An overview of the current principles and practices involved in various types of guidance and counseling services.

505: Analysis of the Individual. 3-2-3. Preq., Psychology 542 or equivalent. This course offers students an orientation to psychological testing procedures, their interpretation, evaluations and use in the understanding of clients.

506: Introduction to Rehabilitation Counseling. 0-3-3. Philosophical, social, psychological and legislative bases of rehabilitation; nature and scope of the process and functions of rehabilitation counselors.

507: Case Management in Rehabilitation Counseling. 0-3-3. Development of case management in procedures and skills: integration of theory and practice.

508: Introduction to Counseling Theories. 0-3-3. A detailed study of a selection of the best known schools of counseling theory.

510: Counseling the Elderly. 0-3-3. Dynamic and therapeutic models for counseling the aged and their families; focus on matching interventions to lifestyles.

512: Counseling the College Student. 0-3-3. An emphasis on development in young adulthood; historical, philosophical, and practical aspects of personnel services for college students.

513: Education and Occupational Information. 0-3-3. A study of various sources and uses of personal, educational, and occupational information within a career decision-making framework.

514: Career Education: Vocational Guidance. 0-3-3. A course in career guidance designed to provide an overview of career development and its applications within the high school setting.

515: Career Education: Orientation of the World of Work. 0-3-3. A course in career guidance designed to provide an overview of career development and its applications within the elementary school setting.

516: An Introduction To Group Processes. 0-3-3. Preq., Counseling 508. Emphasis is on providing students with a knowledge of group dynamics, and learning basic group counseling techniques under supervision.

518: Techniques of Counseling. 3-2-3. Preq., Counseling 508. Provides an overview of counseling techniques and interview methods.

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 and consent of instructor. Preparation and use of case studies in counseling.

521: Seminar: Current Psychological Literature. 1-3 hours credit. Preq., Counseling 508 and consent of instructor. Students are required to do extensive reading on selected topics in psychology.

522: Field Work in Counseling. 3 hours credit (6). Preq., Counseling 518 and consent of instructor. Supervised study, observation, and practice in selected employment settings.

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. 3 hours credit (6). 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.

529: Cross-cultural Counseling. 0-3-3. Investigation of the development of cultural identity and techniques for appropriate interactions with clients from different cultural groups.

530: Practicum. 5-1-3. Open only by invitation. Supervised professional activity in the student's major field. (Minimum 3.0 GPA required)

531: Internship. 20-1-3 (6). Preq., Counseling 530 or equivalent and permission of adviser. Advanced supervised counseling practice in a setting appropriate to the student's professional development.

613: Vocational and Career Counseling. 0-3-3. Counseling procedures for assisting clients with career decision making and career indecision as well as career assessment.

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. F, W, Sp.

201-202: Economic Principles and Problems. 0-3-3 each. A study of basic economic principles and problems, with particular reference to the operation and social implications of the American economic system. (201-Macro; 202-Micro). F, W, Sp.

215: Fundamentals of Economics. 0-3-3. (Not open to students who have had Economics 201-202.) A survey of the major principles of economics designed for the student whose curriculum requires only one quarter of economic principles. 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. F,W,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.

403: Economics of Industrial Organization. 0-3-3. Preq., Economics 202 or 215. Relationships between structure, conduct and performance of industries using theoretical and empirical material: Antitrust and environmental regulation, R&D, product advertising and pricing are examined. *

406: 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. 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 decision, 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.

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. 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. W. *

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. F, Sp.

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. Sp.

520: Advanced Microeconomic Theory. 0-3-3. Preq., Economics 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., Economics 510. Detailed review of techniques, procedures and data sources used by business economists to gather, analyze, interpret, and forecast macroeconomic variables. W.

541: Microeconomics: Business Conditions Analysis. 0-3-3. Preq., Economics 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., Economics 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

100: Early Experiences in Education. 0-1-1. Designed to give high school seniors an overview of the teaching profession from the perspectives of Teacher Education, Health and Physical Education, and Special Education.

101: Orientation. 0-1-1. Basic rules, policies, history, and organization of the University with special application to education.

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.

125: Introduction to Teaching. 1-1-1. An overview of the teaching profession from various perspectives supplemented with structured observations in elementary, middle, and secondary classrooms.

189: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

194: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

205: The Computer: A Tool for the Teacher. 0-1-1. Instructional, utility, and management software applications for school use. Development of instructional materials, incorporation of commercially available software into lesson and unit structure.

245: Microcomputer Applications: Tools for Lifelong Learning. 0-3-3. Designed to introduce students to the microcomputer and a variety of software applications that may be useful for study, research, and educational preparation.

289: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

294: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

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.

310: Instructional Technology. 1-3-3. Introduction to instructional media for the classroom. Students evaluate and use computer software and other audio-visual media to develop and support classroom instruction.

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.

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.

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.

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.

325: Methods and Materials for Elementary Science. 0-2-2. A course for the study of curriculum, organization, and teaching of elementary school science.

326: Methods and Materials for the Elementary Social Studies. 0-2-2. A course for the study of curriculum, organization, and teaching elementary social studies.

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.

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.

352: Materials and Methods in Teaching Science. 0-3-3. Preq., Education 380. A careful examination of the most advanced methods of organizing the presenting materials in sciences for the secondary school.

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.

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.

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.

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.

380: Principles of Teaching. 0-3-3. An investigation of the principles of teaching as related to the student, curriculum, and the teaching-learning process.

389: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

390: Audio-Visual Lab. 1 1/4-1-1. A course to instruct the prospective teacher in the operation of various types of audio-visual equipment.

394: Special Topics. 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

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.)

401: Directed Observation and Pre Student Teaching Experiences. 3 3/4-1-1. Preq., 90 semester hours including professional preparation courses and to be quarter prior to student teaching. Directed observation, participation, and critique related to the field in which the student plans to student teach.

402: Measurement in Education. 0-2-2. Includes principles of measurement and evaluation, construction of teacher-made tests, and utilization of standardized tests.

403: Materials and Methods of Teaching Reading. 0-3-3. Deals with problems of teaching reading. Includes emphasis on remedial and developmental reading as well as instruction in content areas.

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.

409: Materials and Methods in Teaching Business Education. 2 to 3 semester hours. Preq., Office Administration 307, Accounting 210, Management Information Systems 101. A course designed to acquaint the student with the best practices in teaching commercial subjects.

410: Business and Office Operations. 0-3-3. Methods and procedures in developing and coordinating a cooperative office education program in the secondary school.

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. (Pass-Fail).

420: Practica 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. (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.

430: Internship in Teaching. 35-0-3 (9). Preq., twelve semester

hours professional education. Supervised teaching experience in area(s) of certification in education.

431: School Readiness. 1-3-3. Preq., Psychology 204. Designed to acquaint the student with the appropriate theory, understanding, and methods necessary for beginning school success. Particular emphasis will be on holistic developmental readiness. *

432: Kindergarten Education. 1-3-3. Preq., Psychology 204. Course will involve curriculum planning based on principles of child development. Students will become familiar with the curriculum development process by using curriculum documents including instructional units. *

433: Special Problems in School Curriculum. 3 hours credit. (9). Preq., consent of instructor. Course is designed to deal with selected problems in elementary and secondary schools.

441: Methods of Teaching Kindergarten Children. 1-3-3 Preq., Psychology 205, Library Science 201, and Education 432. Practical problems in the selection and organization of the curriculum to promote children's learning. Emphasis on planning, selecting equipment, teaching aids, and teaching procedure. *

445: Using the Microcomputer in the Classroom. 0-3-3. Operating and using microcomputers for classroom instruction. Computer literacy concepts, and software evaluation are included. *

446: Instructional Classroom Materials. 0-3-3. Designed to acquaint teachers with the selection, preparation, utilization and evaluation of audio-visual instructional materials.

447: Software Application, Teaching Methods, and Intermediate Programming for Teachers. 0-3-3. Preq., a course in BASIC programming. Computer-assisted instructional software, authoring packages, LOGO, and intermediate programming skills for classroom instruction. *

448: Instructional Software Design and Development. 0-3-3. Preq., A course in BASIC programming. Methods for teaching computer-related topics and programming techniques for designing instructional modules. *

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.

450: Improving Instruction in Art. 0-3-3. Identification of problems of teaching art. Emphasis upon philosophy, art materials and techniques, evaluation and curriculum planning.

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.

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.

453: Foreign Language Teaching Methods. 0-3-3. Preq., 12 hours of a foreign language. Study of a broad range of foreign language teaching methods; examination of underlying theories and practical applications. Also listed as Foreign Language 453.

454: English Grammar in ESL Teaching. 0-3-3. Preq., Senior standing. An analysis of English grammar specifically for developing instructional techniques used in teaching grammar for communicative competence in ESL. Also listed as ESL 454.

455: Improving Instruction in the Middle Grades. 0-3-3. A study of the history, philosophy, and nature of the middle school with emphasis on early adolescent physical and educational development and social/emotional problems.

460: Methods for Teaching and Testing in ESL. 0-3-3. Preq., Senior standing. Theories and techniques for teaching English as a Second Language and evaluating student performance; emphasis on communicative competence. Also listed as ESL 460.

462: Principles and Problems of Cooperative Education. 0-3-3.The basic principles and philosophies of cooperative vocational education. History and development of cooperative education.

465: Materials and Methods of Teaching Vocal Music. 0-3-3. Examines problems which confront the teacher and supervisor of vocal music; e.g., program building, contests, festivals, requisitions, grading, materials, scheduling, and rehearsing.

466: Materials and Methods of Teaching Instrumental Music. Preq., Education 380. See Education 465 for description; emphasis on the instrumental aspects.

470: Curriculum Development and Design for ESL. 0-3-3. Preq., Senior standing. Selection of objectives, content, task implementation, and pedagogy for teachers of English as a Second Language. Also listed as ESL 470.

471: Classroom Management. 1-3-3. Course emphasizes the application of concepts, principles, and skills necessary for designing, implementing, evaluating, and revising plans for classroom management. *

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.

475: Foundations of Education. 0-2-2. An interdisciplinary survey of the development of educational institutions and practices with particular focus upon the influences of social, legal, historical and philosophical thought. *

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.

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.

489: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

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. *

491: Reading in Adult Education. 0-3-3. Examines the characteristics of the functionally illiterate adult.

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.

493: Cross-Cultural Communication for ESL Teaching. 0-3-3. Preq., Senior standing. Concepts of culture and the relationship of language acquisition to the cultural setting with specific application to the teaching of ESL. Also listed as ESL 493.

494: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

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 area 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.

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: Seminar: Crucial Issues in Secondary Education. 0-3-3. Selected readings and research on current, crucial issues in secondary education. Topics will vary from quarter to quarter.

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.

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.

521: Assessment of Students and Programs. 0-3-3. Diagnosing and evaluating students and programs within the framework of instruction; emphasis on problem solving in order to improve learning and teaching.

522: Instructional Theory and Practice. 0-3-3. Exploration and investigation of methods and paradigms of instructional theory and delivery; emphasis on creative application of instructional technology and processes that create learning opportunities.

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.

526: Curriculum Development. 0-3-3. Application of theory and research of curriculum; issues and trends in curriculum; strategies and techniques for planning curriculum; value and empirical bases for curriculum decisions.

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 education plans.

531: Foundations of Reading. 0-3-3. An indepth examination of the processes involved in language development from pre-reading through advanced reading skills.

532: Reading Curriculum and Materials Development. 0-3-3. Analysis of reading curriculum and development of instructional materials for various levels of reading ability.

533: Problems in Education. 3 hours credit (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. 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.

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 new technology with some practical experience in the use of these educational aids.

545: Instructional Media Design and Development. 2-2-3. An investigation of the systems approach to instructional media design, organization, and application.

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. 0-3-3. 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.

552: Supervision of Instruction in Elementary and Secondary Schools. 0-3-3. A course designed to aid prospective elementary and secondary administrators in theories, principles, and concepts of supervision.

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.

565: Differentiated Supervision. 0-3-3. Focuses on improvement of classroom instruction through the building of the relationship between supervision and teaching.

566: Improving Instruction in Remedial Education. 2-2-3. Focuses on improvement of college level instruction at the remedial/developmental level.

567: Teaching Methods for Language Arts. 0-3-3. Provides an indepth study of the elements of lesson planning and design with emphasis in the teaching of written and oral communication (other than reading).

568: Teaching Methods for Effective Instruction of Reading. 0-3-3. An indepth study of reading programs and materials, diagnosis and instruction for individual needs, research findings, and their applications to methods of instruction.

569: Teaching Methods for Effective Instruction of Mathematics and Educational Technology. 0-3-3. An indepth study of mathematics curriculum, instructional methods and materials, and research findings with an investigation of technology usage in the content fields.

570: Field Problem and Internship. 0-3-3. Preq., approval of the Head of the Department of Business Analysis and Communication 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 Business Analysis and Communication 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.

572: Educational Foundations and Public Policy. 0-3-3. An analysis of the links between educational policy and school history with particular emphasis on the historical, philosophical, social, and legal foundations of education.

573: School Principles and Curriculum. 0-3-3. An analysis of the curriculum and principles of learning with additional emphasis on multicultural education, "at risk" students, and classroom management.

574: Teaching Methods for Effective Secondary School Instruction. 0-3-3. An examination of research, resources, and advanced techniques of teaching in secondary schools.

575: Practicum in Education. 10-1-3. Preq., Consent of Director of Laboratory Experiences. Structured laboratory experiences in education. (Pass-Fail)

576: Internship in Education. 9 hours credit. Advanced internship in area(s) of specialization. Minimum of 180 clock hours in direct teaching.

577: Teaching Methods for Effective Instruction of Science and Social Studies. 0-3-3. An examination of curriculum, instructional methods and materials, and research findings related to the teaching of science and social studies.

580: Specialist Research and Thesis. Three hours credit or multiples thereof. Maximum credit allowed is six hours.

589: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Education.

594: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Education.

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. Sinusoidal forcing functions. Phaser concepts, AC circuit analysis. Power and rms values. Polyphase circuits.

222: Electrical Circuits. 0-3-3. Preq., Electrical Engineering 221 and credit or registration in Mathematics 232. Transient analysis of both source-free and driven first and high order systems. Complex frequency and resonance phenomena. Computer solution of circuits.

226: Electrical Circuits. 0-2-2. Preq., Mathematics 231 and Physics 202. DC circuits. Network theorems. AC circuits and phasors. F, W, Sp.

229: Basic Electrical Measurements. 3-0-1. Preq., Electrical Engineering 221 or 226. An introduction to computer methods, instruments, devices and design for measurements in electrical networks. F, W, Sp.

231: Introduction to Digital Design. 0-3-3. Coreq., Electrical Engineering 239. Introduction to digital design techniques, Boolean algebra, combinational logic, minimization techniques, simple arithmetic circuits, programmable logic, sequential circuit design, registers and counters.

239: Digital Design Lab. 3-0-1. Coreq., Electrical Engineering 231. Laboratory for digital design techniques, combinational and sequential logic design, registers and counters.

241: Introduction to Microcomputers. 0-3-3. Preq., Electrical Engineering 231 or Computer Science 265. Introduction to

computer organization and operation, data representation and manipulation, assembly language programming, register level operations, peripheral device interfaces.

311: Introduction to Electric and Magnetic Fields. 0-3-3. Preq., Electrical Engineering 222, Physics 202. Vector analysis. Static electric fields. Energy and potential. Mapping methods. Static magnetic fields. Magnetic circuits and inductance. F, W.

321: Linear Systems. 0-3-3. Preq., Electrical Engineering 222 and credit or registration in Math. 350. Fourier Series. Fourier Transform. Laplace Transform. Convolution and the system function. Filters. State variable representation and solution. W, Sp.

322: Introduction to Discrete-time Signals and Systems. 0-3-3. Preq., Electrical Engineering 321. Discrete Signals, LTI-Systems, Discrete Fourier Analysis. Discrete Filters, Sampling, Z-transform.

331: Analog Electronics. 0-3-3. Preq., Electrical Engineering 221. Diode and transistor characteristics and models. Design of power supplies, single state and multi-stage amplifiers. Design and applications of operational amplifiers. F, W.

332: Analog Electronics II. 0-3-3. Preq., Electrical Engineering 331. Operational amplifiers and applications, class A, B, and C amplifiers, frequency response, feedback, and oscillators. W, Sp.

334: Solid State Electronics. 0-3-3. Preq., Mathematics 350, Physics 202. Fundamentals of solid state electronic materials and devices, emphasizing semiconductors and principles of operation of ULSI devices. F.

336: Electronics. 0-3-3. Preq., Electrical Engineering 226. Signal processing, basic semiconductor theory, semiconductor devices, amplifiers and industrial applications, integrated circuits, logic circuits, memories, binary arithmetic and Boolean algebra. Sp.

339: Electronics Design Laboratory. 3-0-1. Preq., Electrical Engineering 329. Coreq., Electrical Engineering 332. Design of DC power supplies, single-state amplifiers, digital circuits, and operational amplifier applications.F,W,Sp.

381: Electrical Machinery. 0-3-3. Preq., Electrical Engineering 311. Electromagnetic energy storage and conversion. Principles of electromechanical energy conversion. Power transformers. Design of electromechanical devices. Analysis of rotating machines. F, W, Sp.

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. W.

389: Electrical Machinery Laboratory. 3-0-1. Preq., Electrical Engineering 329 and credit or registration in Electrical Engineering 381. Laboratory design and testing of basic electromechanical devices and machines. F,W,Sp.

402: Electrical Design. 3 hours credit. Preq., written consent of supervising instructor. Closely supervised design of electrical engineering problem. Opportunity for individual investigation, design, and fabrication of electrical apparatus. F, W, Sp.

403: Electrical Design. 1 hour credit. Preq., Written consent of supervising instructor. Closely supervised design of electrical engineering problem. Opportunity for individual investigation, design and construction of electrical apparatus or system. F, W, Sp.

404: Electrical Design. 2 hours credit, Preq., written consent of supervising instructor. Closely supervised design of electrical engineering problem. Opportunity for individual investigation, design, and construction of an electrical apparatus or system. F, W, Sp.

406: Electrical Engineering Design I. 3-1-2. Preq., Electrical Engineering 332, 339, 389 and senior standing. Design problems requiring the integration of circuits, electronics, field theory, controls, energy conversion, power systems, and economics. F, W, Sp.

407: Electrical Engineering Design II. 3-1-2. Preq., Electrical Engineering 406 and permission of instructor. The continuing of Electrical Engineering 406 and the implementation of the design process.

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 Engineering 411. Transmission lines and distributed parameters. Wave guides, traveling electro-magnetic wave analysis, and boundary valve problems. Impedance matching, graphical solutions, and microwave networks. Laboratory applications and design. *

435: Electronics. 0-3-3. Preq., Electrical Engineering 332. Feedback amplifiers, integrated circuit analysis, operational amplifier applications in the areas of nonlinear circuits, active filters, switching circuits, controls, and communications.

437: Microfabrication Principles. 0-3-3. Preq., Mathematics 350, Physics 202. Fundamentals of microfabrication processes necessary for the realization of ULSI and other technologies. W.*

438: Microfabrication Applications and Computer-Aided Design. 0-3-3. Preq., Electrical Engineering 437. Microfabrication process integration and applications to the realization of ULSI and other technologies. Sp. *

441: Computer Systems Interfacing. 3-2-3. Preq., consent of instructor. Topics useful in integrating multi-component systems of manufacturing with computer-based monitoring, control and communication. *

442: Advanced Microprocessor System Design. 3-2-3. Preq., Electrical Engineering 441 or consent of instructor. Advanced topics in microprocessor hardware and software system design. To include topics in microprocessor instrumentation, controls and communication. W, Sp. *

446: Microprocessor Applications. 3-2-3. Preq., Electrical Engineering 442 or equivalent. Consent of instructor. An introduction to the use of microprocessors. Available devices, organization, programming, system design. Sp.

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. 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. F, W, Sp. *

461: Communication Systems. 0-3-3. Preq., Electrical Engineering 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 Engineering 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 Engineering 411. Optical waveguides, mode theory and ray optics. Transmission losses and signal distortion. Optical sources, detectors and transmission link analysis.

469: Communications Laboratory. 3-0-1. Coreq., Electrical Engineering 461. Communications laboratory to accompany Electrical Engineering 461. Fourier Spectrum, AM systems, FM systems, and Time Division Multiplex. F, Sp.

471: Automatic Control Systems. 0-3-3. Preq., Electrical Engineering 321, Mathematics 350 or consent of instructor. Analysis and design of linear feedback systems. Mathematical modeling. Transfer functions and signal-flow graphs. State variable analysis. Time domain analysis and design of linear control systems. Frequency domain analysis and design of linear

control systems. W, Sp. *

472: Linear Discrete Systems I. 0-3-3. Preq., Electrical Engineering 321, 471 or consent of instructor. An introduction to the theory of linear discrete control systems. Time-domain analysis of discrete systems. Z-transform. Sampling. Discrete-time signal analysis. Sampled data control systems. *

473: Linear Discrete Systems II. 0-2-2. Preq., Electrical Engineering 472 or consent of instructor. Stability theory. Periodic systems. Macroscopic system theory and Z-transform analysis.

479: Automatic Control Systems Laboratory. 3-0-1. Credit or registration in Electrical Engineering 471. Laboratory design, simulation and testing of automatic control systems. W, Sp. *

481: Power Systems. 0-3-3. Preq., Electrical Engineering 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, Sp. *

482: Power Systems Design and Analysis. 0-2-2. Preq., Electrical Engineering 481 or consent of instructor. Symmetrical components. Analysis of power systems in the transient state including unsymmetrical faults, stability, lighting, and switching surges. Control of frequency and power flow in interconnected systems. Sp. *

483: Industrial Energy Systems Design. 0-2-2. Preq., Electrical Engineering 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.

491: Machine Vision. 3-2-3. Preq., Senior or Graduate status and permission of instructor. Machine Vision systems applied to Manufacturing. Content includes lighting, optics, vision hardware and software.

512: Electromagnetic Waves. 0-3-3. Preq., Electrical Engineering 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 Engineering 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.

523: Active Network Synthesis. 0-3-3. Preq., Electrical Engineering 522 or permission of instructor. Negative impedance converters and controlled sources in active R-C network synthesis. Lossless nonreciprocal two-part network synthesis. Characterization of negative impedance amplifiers.

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.

535: Advanced Topics in Microelectronics. 0-3-3 (6). Preq., consent of instructor. May be repeated with change in subject matter. Selected topics of current research interest in the field of microelectronics.

537: Advanced Microfabrication with Computer-Aided Design. 0-3-3. Preq., Electrical Engineering 438 or consent of instructor. Advanced microfabrication process development and integration with the aid of computer process modeling and simulation.

538: Advanced Microelectronic Devices with Computer-Aided Design. 0-3-3. Preq., Electrical Engineering 537 or consent of instructor. Principles of operation and analysis of advanced microelectronic devices with the aid of computer device modeling and simulation.

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 Engineering 331 and 442 or consent of instructor. Study of microcomputer design. Microcomputer Development System and Logic Analyzer. Design of control processors.

545: Computer Architecture. 0-3-3. Preq., CME 460 or graduate standing. An introduction to current machine architectures. Topics include memory design, pipeline processing, vector machines, multiprocessor architectures and parallel algorithm design techniques and evaluation methods.

546: Parallel Processing. 0-3-3. Preq., Electrical Engineering 545 or consent of instructor. Current large scale parallel processing systems. SIMD and MIMD machine organizations and single-stage and multistage interconnection networks are introduced with case studies.

547: Fault-Tolerant Computer Systems. 0-3-3. Preq., Electrical Engineering 545 or consent of instructor. Methodologies for specifying, designing and modeling fault-tolerant computer systems: fault classification, design techniques for fault detection and recovery, reliability modeling techniques. Sp.

548: Parallel Image Computation. 0-3-3. Preq., Graduate Standing. Parallel approaches to image computation, multiprocessor and cellular architectures for computer vision, current machines and techniques for different levels of image processing.

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.

551: Research and Thesis in Electrical Engineering. Registration in any quarter may be for three semester hours credit of multiples thereof. Maximum credit allowed is six semester hours.

555: Practicum. 0-3-3 (6). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research techniques.

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.

564: Information Theory. 0-3-3. Preq., Electrical Engineering 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 Engineering 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 Engineering 561 or permission of instructor. Estimation, based on noise-corrupted observations, of unknown system states. Maximum-likelihood and least square estimation; matched filters. Wiener and Kalman filtering.

569: Advanced Topics in Communication Systems. 0-3-3. Preq., consent of instructor. May be repeated with change in subject matter. Selected topics of current research interest in the field of communications.

572: Digital Control Systems I. 0-3-3. Preq., Electrical Engineering 471 or permission of instructor. Sampling Theory. Date 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 Engineering 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 Engineering 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 Engineering 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 Engineering 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 Engineering 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 Engineering 381 or permission of instructor. Equations of motion of electromechanical systems. Analytical techniques for solution of equation. Typical transducers. The generalized machine system dynamics.

588: Advanced Topics in Power Systems. 0-3-3. Preq., consent of instructor. May be repeated with change in subject matter. Selected topics of current research interest in the field of power systems engineering.

591: Computer Vision. 0-3-3. Preq., Electrical Engineering 491 or permission of instructor. Optics, lighting, hardware and software for computer vision.

641: Advanced Topics in Computer Systems. 0-3-3. Preq., Electrical Engineering 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 Engineering 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 Engineering 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 Engineering 571 or permission of instructor. Mathematical models of nonlinear systems. Phase-space analysis. Critical point characterization. Describing functional Sub-harmonic generation. Stability determination. General solution methods.

681: Advanced Topics In Power Systems. 0-3-3. Preq., Electrical Engineering 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., 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. Concurrent registration in Electro-Technology 170. Laboratory companion to Electro-Technology 170. W.

180: A-C Circuits. 0-3-3. Preq., Electro-Technology 170, Coreq., Math 112. 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. Concurrent registration in ET 180. Laboratory companion to ET 180. Sp.

196: A-C & D-C Analysis. 0-2-2. Preq., Mathematics 111, 112, and some experience with A-C and D-C Circuits. Mathematical principles with underlie circuit analysis. Mesh and nodal analysis, network theorems, Kirchoff's laws, Thevenin's and Norton's equivalents for both A-C and D-C circuits.

197: Electronic Analysis. 0-3-3. Preq., Electro-Technology 180, and some experience with electronic circuits transistors and operational amplifiers. Mathematical principles which underlie electronic analysis. Amplifiers and feedback circuits.

198: Instrumentation. 0-2-2. Preq., Electro-Technology 180 or 196, and some experience with instrumentation circuits. Mathematical principles which instrumentation.

260: Electronics. 0-3-3. Preq., Electro-Technology 180. 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., Concurrent registration in Electro-Technology 260. Introductory electronics laboratory, a companion to Electro-Technology 260. 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., Concurrent registration in Electro-Technology 270. Laboratory for the study of electrical and electronic controlled instrumentation. W.

272: Electronics Applications. 0-3-3. Preq., Electro-Technology 260. 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. 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., Mathematics 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. Concurrent registration in Electro-Technology 285. Digital and analog computer systems, circuits, and maintenance. Sp.

285: Computers Laboratory. 3-0-1. Preq., 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 and 270. Concurrant 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. Concurrent registration in Electro-Technology 360. Companion laboratory to 360. W.

370: Integrated Circuits. 0-3-3. Preq., Electro-Technology 260. 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. 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. 0-3-3. Preq., Engineering 151. A course in mechanical drafting with emphasis on schematic diagrams, wiring diagrams, circuit boards, and electrical standards and codes. F.

460: Communication Circuits. 0-2-2. Preq., Electro-Technology 260. 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. 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., Electro-Technology 370 and Electro-Technology 390. A student project course in design, layout and fabrication of printed circuits. Sp.

468: Electronic Motor Control. 0-3-3. Preq., Electro-Technology 260, 360. Concurrent registration in Electro-Technology 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., Concurrent registration in Electro-Technology 468. Companion laboratory to Electro-Technology 468. Sp.

470: Control Systems. 0-2-2. Preq., Electro-Technology 260. 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. 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. 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. 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. F, W, Sp.

ENGINEERING

100: Introduction to Engineering. 3-0-1. Introduction to engineering, the curricula and the professions, their challenges and rewards. F.

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. F, W, Sp.

151: Engineering Graphics and Computer Modeling. 6-0-2. Beginning graphics and computer modeling for engineers. F, W, Sp.

162: Descriptive Geometry. 0-3-3. Preq., Engineering 151. Orthographic representation and solution of space problems.

189: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering. May be repeated for credit.

194: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering. May be repeated for credit.

289: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering. May be repeated for credit.

294: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering. May be repeated for credit.

299: Cooperative Education Applications. 40-0-1 (7). Preq., Admission to the College of Engineering Cooperative Education Program. Pass-fail. F, W, Sp.

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.

389: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering. May be repeated for credit.

394: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering. May be repeated for credit.

401: Engineering Economy. 0-2-2. Preq., Mathematics 220 or 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.

489: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering. May be repeated for credit.

494: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering. May be repeated for credit.

589: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Engineering.

594: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Engineering.

651: Research and Dissertation. Doctoral students only. Registration in any quarter may be for three semester hours credit or multiples thereof, up to a maximum of nine semester hours credit per quarter. Maximum total credit allowed is thirty hours.

ENGINEERING MECHANICS

201: Statics. 0-2-2. Preq., 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.

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. 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, W.

207: Strength of Materials. 0-3-3. Preq., Engineering Mechanics

206. Mechanics of deformable bodies. Stresses and strains. Beam deflections. Column theory. Torsion. W, Sp.

211: Statics. 0-3-3. Preq., Mathematics 231 or 220. Mechanics of rigid bodies. Resultants and equilibrium of force systems. Centroids, fluid statics, trusses, friction, and moments of inertia. 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.

311: Mechanics of Materials. 0-3-3. Preq., Engineering Mechanics 211 and Mathematics 232. Mechanics of deformable bodies. Stress and strain, torsion, bending, deflection of beams, columns. 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 impulse momentum equations. Steady flow in pipes and open channels. Fluid measurements. F.

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: Freshman Composition I. 0-3-3. Standard course for first-year college students; the three stages of writing (prewriting, writing, and rewriting); writing essays in various modes; grammar review. **F, W, Sp.**

102: Freshman Composition II. 0-3-3. Preq., English 101. Continues work of Composition I; includes preparation of a research paper from library sources.

200: Poetry Appreciation. 0-3-3. Preq., English 101 and 102. An introduction to poetry designed for students seeking to fulfill General Education requirements under Humanities.

201-202: Sophomore English-Introduction to British and American Literature. 0-3-3 each. Preq., English 101-102. F, W, Sp.

English 201 is a prerequisite for advanced courses in British literature; English 202 is a prerequisite for advanced courses in American literature.

260: Introduction to Technical Writing. 0-3-3 Preq., English 102. Introduction to planning and formatting technical documents, finding information sources, developing technical writing styles, and using the modes of discourse as applied to technical writing.

275: Introduction to Linguistics. 0-3-3. Introduction to the scientific study of language; concepts of language, language acquisition, language change and variation; survey of theoretical issues. Also listed as Foreign Language 275.

303: Technical Writing. 0-3-3. Preq. English 102. Development of technical writing skills and styles; various technical writing assignments, including a technical report. F, W, Sp.

308: The Short Story. 0-3-3. Preq., English 201 or 202. Study of the form and development of the short story.

309: Readings in the American Novel. 0-3-3. Study of classic American novels of the nineteenth and twentieth centuries.

325: Contemporary English and American Poetry. 0-3-3.Sp.

332: Advanced Grammar. 0-3-3. Preq. English 102. Study of descriptive grammar with some prescriptive grammar and introduction to transformational grammar. F,W,Sp.

336: Advanced Composition. 0-3-3. Preq., English 102. Writing longer essays in various rhetorical modes, with attention to appropriate writing styles. 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 of 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. *

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. A study of the development of the novel from the eighteenth century through the Victorian period. *

413: The Romantic Period. 0-3-3. A study of the major writers of the age. *

414: The Victorian Period. 0-3-3. A study of the major writers of the age. *

415: Shakespeare. 0-3-3. The major plays and the poems. (Same as Speech 415.) F,W,Sp. *

416: American Literature: Beginnings to 1865. 0-3-3. Study of American writing from the Colonial period through the Civil War.*

417: American Literature: 1865 to Present. 0-3-3. Study of American writing from Reconstruction to the contemporary period. *

419: Contemporary Drama. 0-3-3. American, English, and European. (Same as Speech 419.)

420: The Continental Novel. 0-3-3. *

421: History and Philosophy of Rhetoric. 0-3-3. A survey of the development of rhetoric from its beginning in Ancient Greece and Rome to current theories and practice. *

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 and identification of fallacies. *

424: Southern Literature. 0-3-3. Study of the works of writers who have interpreted the American South, with emphasis on the authors of the Southern Renaissance. *

425: Russian Literature in English Translation. 0-3-3 (9). Representative works of Russian literature from the nineteenth and twentieth centuries; repeatable for credit with different course content. May not be counted towards a minor in Russian. Also listed as Russian 425.*

429: American Fiction of the Twentieth Century. 0-3-3. Study of "the American Century" as reflected in representative novels and short stories.*

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. *

455: Twentieth Century British Literature. 0-3-3. A study of the poetry, plays, and fiction from the early twentieth century onwards. *

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 or 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, senior standing. A course designed to enable the technical writer to plan and conduct 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. 3 hours credit. Preq., English 260 or 303 and permission of instructor. 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: Folklore Studies. 0-3-3. The study of folklore theory and genres in culture and literature with topics ranging from verbal arts to ritual and belief. *

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. *

500: Basic English Skills. 0-3-3. A course to prepare teaching assistants in English to teach Developmental English (English 099) and Freshman Composition (English 101).

515: Shakespeare Seminar. 0-3-3 (6). Preq., English 415 or its equivalent. Study of principal Shakespeare texts and background writings of the Elizabethan and Jacobean Periods; repeatable once for credit with different instructor and/or course content.

575: Special Topics. 0-3-3. Graduate seminar with topic to be designated by instructor.

583: Seminar in British Literature. 0-3-3 (6). Selected reading and research topics in British Literature; repeatable once for credit with different instructor and/or course content.

584: Seminar in American Literature. 0-3-3 (6). Selected reading and research topics in American Literature; repeatable once for credit with different instructor and/or course content.

585: English Teachers' Workshop. 0-3-3. A course designed primarily for public school teachers of English.

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 SECOND LANGUAGE

103: ESL Grammar Laboratory. 3-0-1 (3). Sentence pattern exercises for non-native speakers.

104: ESL Pronunciation Laboratory. 3-0-1 (3). Pronunciation and vocabulary exercises for non-native speakers.

111: Level I English Grammar. 0-3-3. High beginning grammar in context for non-native speakers.

112: Level I Writing. 0-3-3. Basic sentence patterns and paragraph structure for non-native speakers.

113: Level I Vocabulary/Conversation. 0-3-3. Pronunciation, word study, and contextual practice for non-native speakers.

114: Level I Reading. 0-3-3. For non-native speakers at the 1,000-word vocabulary level.

121: Level II English Grammar. 0-3-3. Low intermediate grammar in context for non-native speakers of English.

122: Level II Writing. 0-3-3. A continuation of beginning writing skills for non-native speakers. Emphasis on paragraph organization and structure.

123: Level II Vocabulary/Conversation. 0-3-3. Word study through contextual readings and teacher/test guided conversational practice for non-native speakers.

124: Level II Reading. 0-3-3. For non-native speakers at the 1,500-word vocabulary level.

203: ESL Listening Comprehension Laboratory. 3-0-1. Exercises in listening comprehension skills for non-native speakers.

204: ESL Conversation Laboratory. 3-0-1 (3). Exercises for developing conversation skills for non-native speakers.

231: Level III English Grammar. 0-3-3. High intermediate grammar in context for non-native speakers.

232: Level III Writing. 0-3-3. High intermediate writing skills for non-native speakers. Emphasis on paragraphs and short compositions.

233: Level III Vocabulary/Conversation. 0-3-3. Listening comprehension, auditory cues, vocabulary study and conversational exercises for non-native speakers.

234: Level III Reading. 0-3-3. Reading skills for non-native speakers at the 3,000-word vocabulary level and above.

241: Level IV English Grammar. 0-3-3. Advanced grammar in context for non-native speakers.

242: Level IV Writing. 0-3-3. Advanced composition skills for non-native speakers. Emphasis on essay writing and elementary research techniques.

243: Level IV Vocabulary/Conversation. 0-3-3. Advanced word study to assist non-native speakers in isolating and contextualizing problems within a specific written passage.

244: Level IV Reading. 0-3-3. Reading skills for non-native speakers at the university level.

305: Level V Communication Skills. 0-3-3 (9). Advanced listening, speaking, and body language techniques for non-native speakers studying in the university or assisting or teaching in the American classroom.

454: English Grammar in ESL Teaching. 0-3-3. Preq., Senior standing. An analysis of English grammar specifically for developing instructional techniques used in teaching grammar for communicative competence in ESL. Also listed as Education 454. *

460: Methods for Teaching and Testing in ESL. 0-3-3. Preq., Senior standing. Theories and techniques for teaching English as a Second Language and evaluating student performance; emphasis on communicative competence. Also listed as Education 460. *

470: Curriculum Development and Design for ESL. 0-3-3. Preq., Senior standing. Selection of objectives, content, task implementation, and pedagogy for teachers of English as a Second Language. Also listed as Education 470. *

493: Cross-Cultural Communication for ESL Teaching. 0-3-3. Preq., Senior standing. Concepts of culture and the relationship of language acquisition to the cultural setting with specific application to the teaching of ESL. Also listed as Education 493.*

ENVIRONMENTAL SCIENCE

200: Introduction to Environmental Sciences. 0-3-3. Basic laws,

principles and issues related to the causes, effect and controls of environmental problems. Man-environment interaction. F, W, Sp.

202: Soil Science. 0-3-3. Preq., Chemistry 130, 131, 132, 133. Coreq., Plant Science 200. A general study of soil science, emphasizing the relation of soil properties and processes to plant growth. F, Sp.

210: Introduction to Microbiology. 3-2-3. Basic concepts and laboratory procedures involving microorganisms. F, Sp.

300: Agricultural Pollution. 0-3-3. Preq., Plant Science 202. Study of various agricultural practices as they relate to the causes and solutions to environmental impact of agriculture on the air, water, and soil.

313: Ecology. 4 1/4-2-3. Preq., Biological Sciences 124, 125. An overview of the interactions of plants, animals, and non-living factors as they influence individuals, populations, communities, and ecosystems. F, Sp.

323: Cooperative Education Work Experience. 40-1-3(6). Preq., Sophomore status. Advanced paid work experience in the student's major. Appropriate to cumulative course work. F, W, Sp.

400: Environmental Science Seminar. 0-1-1(3). Reviews, reports, and discussions of current problems relating to environmental science. F, Sp.

401: Sanitary Microbiology. 3-2-3. Preq., Bacteriology 210 or 212. Microbiology of water and sewage. F.

421: Epidemiology. 0-3-3. Methods of data collection and analysis to determine the frequency, distribution and cause of disease and/or injury in human and non-human populations. *

422: Occupational Health and Safety. 0-3-3. The design and implementation of occupational health and safety services to including fitness-to-work evaluations, health monitoring, hazard evaluation and response to emergencies involving hazardous substances. *

448: Instrumentation. 3-2-3. Preq. 12 SCH of biological or chemical sciences. Emphasizes the operational theory, use, and maintenance of instruments appropriate to biological investigation through didactic and laboratory exercises.

456: Environmental Chemistry. 0-3-3. Preq., one year of college chemistry and junior standing. Chemical principles that regulate and affect the environment. *

458: Environmental Law. 0-3-3. Preq., Biological Sciences 120, 121, or approval of instructor. A review and analysis of state and federal laws, conventions, and international treaties that influence natural resource management. Sp.

FAMILY AND CHILD STUDIES

100: Marriage and Family Relations. 0-3-3. Significant factors for successful marriage, marital adjustment, and family relations. F, W, Sp.

117: Women Studies. 0-3-3. Roles of women in families, education, employment and the community.

200: Parenting. 0-3-3. Study of the parenting role. Emphasis on parent-child interaction as it influences child growth and development. Open to non-majors. W.

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. F, W, Sp.

210: Family Interpersonal Relationships. 0-3-3. The study of interaction between individuals with application to family dynamics, personal relationships, professional interaction, and job competency. F, W, Sp.

221: Parent Involvement in Preschool Education. 0-2-2. Introduction to the theories and methods of parent involvement in early childhood (preschool) education.

277: Guiding Infants and Young Children. 0-2-2. Principles and techniques of positive guidance emphasizing a problem solving philosophy and a child-centered approach. W.

280: Hospitalized Children and Youth. 0-3-3. Study of issues involved in childhood illnesses and hospitalization.

291: Orientation to Child Life Programs. 0-3-3. A study tour of child life programs and services. Application required. May be repeated for credit with Dean's permission.

301: Early Childhood Development. 3-2-3. The development of young children. Theory and practice are correlated through readings, class discussions, and nursery school laboratory experiences. F.

311: Literacy Development in Early Childhood Education. 0-3-3. Preq. or coreq., Admission to Teacher Education Upper Division and Family & Child Studies 321. Development of early language skills. Emphasis on the preschool language arts curriculum as preparation for language development. Sp.

320: Family Theory. 0-3-3. Preq., Family & Child Studies 100, 201 or consent of instructor. An overview of theoretical frameworks in family science with primary emphasis given to application of constructs. Sp.

321: Methods in Early Childhood Education. 3-2-3. Preq., Admission to Teacher Education Upper Division and Family & Child Studies 301 or consent of instructor. Important factors in planning for preschool children. Emphasis on objectives, planning nursery school experiences, and evaluation. W.

331: Infant Development. 3-2-3 Preq., Family & Child Studies 201 or consent of instructor. Survey of influences on prenatal and infant development. Theory and practice correlated through readings, class discussion and laboratory experiences. Sp.

361: Observation and Assessment Techniques of Children. 0-2-2. Preq., Family and Child Studies 201, 280, and 291 or consent of instructor. Skills and strategies needed to observe and assess children's development in a clinical setting.

400: Contemporary Family Issues. 0-3-3. Preq., Family & Child Studies 201 or consent of instructor. Selected issues related to family interaction and adjustment from an ecosystems perspective. F.

401: Curriculum and Organization of Early Childhood Education Programs. 0-3-3. Preq., Admission to Teacher Education Upper Division and Family & Child Studies 321 or consent of instructor. Organization of preschool programs with emphasis on creative activities, materials and facilities. Sp. *

410: Multi-Cultural Family Studies. 0-3-3. Cross-cultural survey of family patterns and their implications for professionals in the community and workplace. Sp. *

420: Issues in Family Life Education. 0-3-3. Preq., Home Economics 405, or Family & Child Studies 321, or consent of instructor. Methodology of teaching current family issues in family education programs. Development of family life educator skills with emphasis on parent education and marital enrichment. W. *

421: Student Teaching in Early Childhood Education: Nursery School. 16-1-6. Preq., Admission to Teacher Education Upper Division and Family and Child Studies 421, consent of instructor, preregistration and application required. An intensive practical experience in supervised nursery school teaching. F, W, Sp.

432: Children Under Stress. 0-3-3. Preq., Family and Child Studies 301 and 331 or consent of instructor. In-depth study of issues relating to the identification, understanding, and intervention in childhood stress. *

441: Public Policy and the Family. 0-3-3. Preq., Family and Child 320 or consent of instructor. Examination of the people and processes involved in making public policy that has an emphasis on the family. *

447: Issues in Gerontology. 0-3-3. Preq., Sociology 435 and Family and Child Studies 201 or Psychology 408 or consent of instructor. Issues which impact older age adults including public policy, close relationships, sexuality, housing, nutrition and apparel. *

451: Theory, Guidance, and Therapeutic Value of Play. 0-3-3.

Preq., Family & Child Studies 320 or consent of instructor. Study of play in teaching, therapy, and creativity for children and youth.*

461: Administration of Early Childhood Education/Child Life Programs. 0-3-3. Preq., Family & Child Studies 321 or consent of instructor. Planning and administering day care centers and early childhood education programs, and child life programs. F.*

471: The Family and the Legal System. 0-3-3. The study of our legal system as it relates to family structure and function. *

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.

502: Advanced Child Development. 0-3-3. An indepth exploration into social/emotional, cognitive and physical development of children from birth to 8 years of age.

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. Sp.

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. W.

521: Family Crisis. 0-3-3. Preq., Family & Child Studies 520 or consent of instructor. Origins, development, and coping responses to predictable and unexpected crises of family systems in varied ecological settings.

522: Family Life Education Programs. 0-3-3. Study of theory and methods used in developing programs to reduce mental health risks and build strengths of families.

530: Early Childhood Programs. 0-3-3. Survey of early childhood program models.

540: Parent Involvement. 0-3-3. Theories, issues and public policy of parent involvement in the educational process of children.

FAMILY MANAGEMENT AND CONSUMER STUDIES (See Merchandising and Consumer Affairs)

FINANCE

100: Family Financial Management. 0-3-3. Specific family financial decisions, including budgeting, insurance, home purchase or rent, consumer rent, 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 or 215 and Accounting 202 and junior standing. A study of the methods of financing a business firm, including sources and applications of funds, 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, W, Sp.

330: Risk and Insurance. 0-3-3. A comprehensive study of and riskbearing, including insurance and non-insurance methods of handling a risk; introduction to the fields of life, disability, property, and casualty insurance. F, W, 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, W, 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. F, Sp. *

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.

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. F, Sp. *

427: Financial Forecasting. 0-3-3. Preq., Economics 202 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.

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.

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, the Appraisal Institute.

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, the Appraisal Institute.

445: Real Estate Finance. 0-3-3. Preq., Finance 318. Finance principles applied to real estate. Sources of funds, legal and financial instruments, and analytical methods for decision making. W. *

511: Risk Management. 0-3-3. The economic concept of risk and various techniques utilized in the discovery, evaluation and treatment of a business pure risk.

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. W.

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. F.

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. Sp.

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. W.

525: Seminar in Investments. 0-3-3. Study of the theories and

techniques of investment analysis for purposes of evaluation and selection of investments.

610: 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. W.

615: Seminar in Financial Theory II. 0-3-3. Preq., Finance 610. 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. Sp.

FOOD AND NUTRITION

103: Human Nutrition and Weight Control. 0-1-1 (3) Pass/Fail. Personalized weight control program based on recommended nutrients, behavior modification and energy balance. F, W, Sp.

203: Human Nutrition. 0-3-3. Functions of various nutrients and their interrelationships in children and adults with emphasis on personal food habits and selection. F,W,Sp.

212: Food and the Consumer. 6-1-3. Preq., Food & Nutrition 232. Considerations in food management, including convenience, legislation, consumer acceptability, spending patterns, and lifestyles.

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) F, W, Sp.

232: Basic Food Science. 3-2-3. Use of food science principles in food selection and preparation procedures. Sp.

233: Creative Experiences in Nutrition. 3-0-1. Preq., or Coreq., Food & Nutrition 223 or 203. Food preparation and nutrition activities for young children. W (Alternate years).

253: Sports Nutrition. 0-3-3. Nutrient needs and food related issues in exercise for wellness and training for competitive athletes. F, W, Sp.

302: Quantity Foods Field Experience. 4-2-3. Preq., Food & Nutrition 352. Equipment and production in the food service industry; field experience in food service facilities. Sp.

303: Orientation to Nutrition Care. 0-1-1. Preq., upper division status or permission of instructor. Introduction to clinical nutrition care. F.

305: Nutrition Education Methods. 0-2-2. Preq., Family and Child Studies 210. Principles and methods of teaching in nutrition education. F.

322: Food Cost Control. 3-2-3. Preq., Accounting 101 or 201, Merchandising and Consumer Studies 246, Food & Nutrition 352. Financial reporting, cost analysis and computer applications within a foodservice environment. W.

343: Health Care Delivery Systems. 0-2-2. Preq., upper division standing or permission of instructor. Aspects of current health care delivery systems in the United States, with a focus on the delivery of nutrition care services. Sp.

352: Food Systems Management I. 0-3-3. Preq., Bacteriology 210 or 214, Food & Nutrition 232, Dietetic major or consent of the instructor. Study of the principles of organization and management applied to institutional food service.

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.

393: Professional Interactions in Dietetic Practice. 3-0-1. Preq., Family & Child Studies 210 and Food and Nutrition 305 and 404. Interpersonal interaction patterns in dietetic practice with emphasis on effective communication and decision making skills. W.

403: Community Nutrition. 0-2-2. Preq., Food & Nutrition 404. Prevention and treatment of nutrition problems common to individuals, families, and communities. Includes a survey of federal, state, and local nutrition programs. W.

404: Human Nutrition Theory. 0-4-4. Preq., Chemistry 132 and 133, Biological Sciences 227, Family and Child Studies 201, Food and Nutrition 103, 203, and 253. Physical and chemical significance of various nutrients and their interrelationships and applications to humans throughout the lifecycle. F.

412: Advanced Food Science. 6-2-4. Preq., Food & Nutrition 232, Chemistry 132 and 133 or consent of instructor. Study of the chemical and physical nature of foods. Individual investigations of selected problems. F.

414: Human Nutrition Care I. 0-3-3. Preq., Food and Nutrition 303 and 404. Planning, implementation, and evaluation of nutrition needs and provision of individualized client care. W.

423: Human Nutrition Care II. 0-3-3. Preq., Food and Nutrition 414. Planning, implementation, and evaluation of nutrition needs and provision of individualized client care. Sp.

443: Human Nutrition Care III. 0-3-3. Preq., Food and Nutrition 414. Planning, implementation, and evaluation of nutrition needs and provision of individualized client care. Sp.

472: Food Systems Management II. 0-3-3. Preq., Food and Nutrition 322 and 362. Study of the principles of organization and management applied to institutional food service. Sp.

474: Dietetic Seminar. 3-2-3. Preq., Food and Nutrition 404 and 352; Statistics 200. Evaluation of current professional literature and introduction to the research process with computer applications. W.

492: Supervised Practice in Nutrition-Dietetics. 30-0-8 (24). Preq., Completion of approved didactic program in dietetics. Coreq., Food and Nutrition 517. Application required. F, W, Sp.

503: World Nutrition Problems. 0-3-3. A study of world wide nutritional problems with special emphasis on recent research and contributing factors. Open to non-majors.

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.

513: Food Science and Technology. 0-3-3. Continuation of Food and Nutrition 512.

517: Graduate Seminar for Supervised Practice Students. 3-0-1. Co-requisite, Food & Nutrition 492. Seminar designed to promote effectiveness of professional written and oral communications, increase knowledge of research, and review content information in selected topics in dietetics.

523: Recent Advances in Client Nutritional Care. 0-3-3 (12). Preq., Food & Nutrition 443 or consent of instructor. Current developments in normal nutrition, nutritional assessment and diet therapy.

525: Nutrition for Educators. 0-3-3. U.S. Dietary Guidelines based nutrition information and resources for preschool through high school age individuals. No prerequisites.

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.

543: Community Nutrition and Wellness Programs. 0-3-3. Preq., Food and Nutrition 403 or consent of instructor. The role of community nutrition in health care, including recent influential changes in the health care delivery system.

553: Clinical Management and Private Practice in Dietetics. 0-3-3. Techniques in dietetics-nutrition service settings to develop, manage, and evaluate private practice.

562: Trends in Food Systems Administration. 0-3-3 (12). Preq., Food & Nutrition 472 or consent of instructor. Seminar on current topics in food systems administration with emphasis on student's area of interest.

FOREIGN LANGUAGES

101-102: Special Offerings in Less Commonly Taught Languages: Elementary 1 & 2. 0-3-3. Introduction to a foreign language not listed in other departmental offerings; emphasis on communicative competence for contemporary languages and on reading competence for classical languages.

190: Cross-Cultural Living. 0-1-1 (3). Introduction to concepts of cross-cultural communication with primary focus on the university setting.

201-202-203: Special Offerings in Less Commonly Taught Languages: Intermediate 1, 2, & 3: 0-3-3 each. Preq., Foreign Languages 102. The more complex structures of a language not listed in other departmental offerings; emphasizes communicative competence for contemporary languages and reading competence for classical languages.

275: Introduction to Linguistics. 0-3-3. Introduction to the scientific study of language; concepts of language, language acquisition, language change and variation; survey of theoretical issues. Also listed as English 275.

290: 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 F, W, Sp.

453: Foreign Language Teaching Methods. 0-3-3. Preq., 12 hours of a foreign language. Study of a broad range of foreign language teaching methods; examination of underlying theories and practical applications. Also listed a Education 453.

489: Special Topics. 0-3-3. Preq., advanced standing. Topic to be designated by the instructor.

494: Independent Studies In Foreign Languages. 1-3 credit hours (9). Preq., approval of instructor and department head. Topics in foreign languages, literature and linguistics for independent study in the student's curriculum specialty

FOREIGN STUDIES

101: Special Academic Studies. 1-3 hours. Special academic studies conducted in foreign countries.

201: Special Academic Studies. 1-3 hours. Special academic studies conducted in foreign countries.

301: Special Academic Studies. 1-3 hours. Special academic studies conducted in foreign countries.

401: Special Academic Studies. 1-3 hours. Special academic studies conducted in foreign countries.

501: Special Academic Studies. 103 hours. Special academic studies conducted in foreign countries.

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.

110: Elementary Drafting. 3-0-1. Introductory drafting, freehand lettering, care and use of drawing instruments. F, W, Sp.

202: Forest Fire. 0-2-2. Forest fire management, protection, and control.

205: Dendrology. 3-1-2. Preq., Biological Sciences 122, 123 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.

215: Forests and Society. 0-3-3. For non-forestry majors. Forestry and its role in today's economic and environmental issues; factors influencing the future of forest resources in the region and nationally.

301: Forestry Ecology. 3-2-3. 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.

306: Forest Measurements. 3-2-3. Preq., Mathematics 111 and 112. Measurements of tree and forest volume, growth and yield, and products.

309: Microcomputers for Life Sciences. 0-3-3. Introduction to microcomputers with specific applications in DOS, BASIC, spreadsheet, and word processing as applicable to the life sciences. Also offered as Life Sciences 309. F, W, Sp.

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 Forests. 3-2-3. Preq., Forestry 215 or consent of instructor. Methods of sampling, evaluating and modifying forest ecotypes for the benefit of wildlife species.

315: Forest Measurements. 3 credit hours. Preq., Forestry 306. Execution of forest surveys; techniques of growth measurement; determination of volume of trees and stands.

317: Aerial Photo Interpretation. 2 credit hours. Principles of recognition and classification of vegetative types on large-scale imagery, including forest inventory techniques.

318: Forest Operations. 3-2-3. Study of mechanized forest operations including all functions from timber felling to delivery of product to mill. Logging safety. Machinery costs. Forest road engineering.

319: Forest Products Manufacturing. 3-0-1. An indepth look at the manufacturing processes used to produce the major forest products and tours of selected production facilities.

320: Tree and Forest Development. 2 credit hours. Silviculture field procedures. Partial use of various silvicultural techniques in development of forest stands.

321: Multiple Resource Management. 1 credit hour. Land use as it relates to multiple resource management in the Southern Forest Region.

322: Bottomland Hardwoods. 2 credit hours. Silviculture management and utilization of hardwoods of the Southern Forest Region.

330-331-332: Forestry Internship. 3 credit hours each, 40 hours per week. Work experience in the intern's major field of Wood Utilization or Forestry. F, W, Sp

340: Wood Machining Processes. 3-2-3. Preq., Forestry 404 or consent of instructor. Machinery, milling methods, and methods for conversion of trees into usable products. W.

341: Bonding and Finishing of Wood 3-2-3. Preq., Forestry 404 or consent of instructor. Adhesive and cohesive properties of glues and finishes and their use in the forest products manufacturing. W.

345: Forest Ecosystem Management. 3-2-3. The principles of managing forest ecosystems across board landscapes for multiple uses and ecosystem integrity.

401: Forest Management. 3-2-3. Preq., Summer Camp. Principles and planning in forest management.

402: Watershed Management. 3-2-3. Preq., Forestry 301 and 405, or permission of instructor. Water resources and problems. Emphasis on the forest hydrologic system and its management.*

404: Wood Technology and Products. 3-2-3. Preq., Biological Sciences 122, 123; Forestry 205, 206; or consent of instructor. Formation, structure, identification and properties of commercial woods plus an overview of the manufacturing processes used to produce the major forest products. F. *

405: Forest Soils. 3-2-3. Preq., Chemistry 100 or permission of instructor. Physical, chemical and biological properties of forest soils and associated management problems with an emphasis

on site productivity and sustainability. *

406: Forest Economics/Valuation. 3-3-4. Preq., Economics 215, junior standing. Economics and financial principles as a basis for decision-making in forestry. *

408: Seasoning and Preservation. 3-2-3. Preq., Forestry 404. Theory and practice of air seasoning and kiln drying of forest products. The basis of wood preservation, preservatives, and methods of application. F, even. *

410: Forest Policy. 0-3-3. Preq., Forestry Field Session. The basic principles, policies and professional ethics 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. *

413: Professional Practice. 6-0-2. Preq., Senior standing and Forestry 401. Data accumulation and analysis; development of forest resource management alternatives and recommendations. A comprehensive state licensure examination or the GRE is mandatory.

414: Wood Products Processing. 3-2-3. Preq., Forestry 404. Hardwood and softwood lumber grades. Manufacture of lumber, veneer, plywood, laminated products and reconstituted panels. F, odd. *

415: Microcomputers in Forestry. 3-1-2. Preq., Forestry 309 or equivalent, Forestry Field Session or Forestry 340, 341. Application for microcomputers in forestry emphasizing word processing, BASIC, and software programs related to forest measurements, silviculture, wood utilization and forestry business applications W. *

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. Development of professional oral communication skills.

431: Soil Trafficability. 3-1-2. Factors affecting traction and flotation of off-the-road machinery. W.

450: Natural Resource Economics. 0-3-3. Tools for economic decision-making applied to the use and allocation of natural resources associated with agriculture. Costs and benefits of various approaches to natural resource management. *

FRENCH

101-102: Elementary French. 0-3-3 each. Conversation, reading and grammar. F,W,Sp.

201-202: Intermediate French. 0-3-3 each. Preq., French 102 or equivalent. Conversation, reading, grammar and culture. 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. 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.

301-302: French Conversation and Composition. 0-3-3 each. Preq., French 202 or permission of instructor. Required for major in French.

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. Tradition, folklore, folk heritage, children's literature of French lands.

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 304-305 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., French 304 or 305, or permission of instructor. A study of French literature from 1914 to the present with reading of selective works. F, even.

417: The Novel in French. 0-3-3. Preq., French 304 or 305, 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., 21 hours French or 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 301-302 or permission of instructor. Required for major in French. Sp, off.

480: Commercial French. 0-3-3. Preq., French 450 or consent of instructor. Study of business practices and regulation of France and Canada with emphasis on using common commercial forms. Sp.

500: The Drama in France (19th & 20th centuries.) 0-3-3. Preq., Graduate Standing. 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., Graduate Standing. Analysis of selected French literary works of the Medieval period.

513: Seminar in French Literature (1660 to date.) 0-3-3. Preq., Graduate Standing. Analytical study of one major author or group of authors whose works are related.

517: Civilization Francaise. 0-3-3. Preq., Graduate Standing. A study of the French cultural contribution to world civilization throughout history.

519: Independent Study. 3 hours credit (6). Preq., Graduate standing. Students will work independently taking into consideration individual needs and interest on a topic to be determined in collaboration with the course instructor.

GEOGRAPHY

203: Physical Geography. 0-3-3. Fundamentals of physical and biogeography with an emphasis on world-wide distributions of patterns and processes. F, W, Sp.

205: Cultural Geography. 0-3-3. Discussion of the spatial patterns of the human world; people, their culture, their livelihoods, and their imprints of the landscape.

230: World Human Geography. 0-3-3. A survey of the people and places of the world. 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.

260: Conservation of Natural Resources. 0-3-3. A study of the conservation of soils, minerals, forests, water, wildlife, human resources.

300: Historical Geography of the United States. 0-3-3. Preq., Sophomores, Juniors, and Seniors. Study of the evolution of the cultural landscape of the United States during the historical period.

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.

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.

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.

315: Geography of South America. 0-3-3. Physical, human, and economic geography of South America.

320: Geography of Asia. 0-3-3. Physical and human geography of Asia.

324: Geography of Africa. 0-3-3. Physical and human geography of Africa.

330: Geography of Australia. 0-3-3. Physical and human geography of Australia, New Zealand, and the Pacific Islands.

335: Economic Geography. 0-3-3. A world survey of economic geography.

360: Geography of Europe. 0-3-3. Physical and human geography of Western and Central Europe, and the Mediterranean basin.

365: Geography of the Soviet Union. 0-3-3. Physical and human geography of the Soviet Union.

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.

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.

380: Cartography. 0-3-3. Elements of map interpretation and construction; interpretation, use and construction of graphs.

400: Elements of the Cultural Landscape. 0-3-3. Recognition, description, analysis and interpretation of elements of the cultural landscape.

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. 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. 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. 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. F.

201: Geology of National Parks and Monuments. 0-3-3. A scenic travelogue through approximately forty National Parks and Monuments with emphasis on their geological features. W.

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.

214: Computer Applications in Geology. 3-2-3. Introduction to the use of microcomputers in Geology. Topics include: wordprocessing, spreadsheets, data base, statistics, graphics, and other programs specifically related to geology. W.

217: Engineering Geology. 0-2-2. Materials of earth's crust and their physical and chemical properties which affect foundations, surface and subsurface waters, and excavations. Sp.

299: Cooperative Education Applications. 40-0-1 (7). Preq., Admission to the College of Engineering Cooperative Education Program. F,W,Sp.

302: Introduction to Paleoecology. 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. Origin, composition, properties and classification of sediments and sedimentary rocks. Fluid flow, sedimentary structures and digenesis. F.

305: Stratigraphy. 0-3-3. Preq., Geology 303. Depositional environments, sedimentary facies, correlations, basin analysis and plate tectonics. W.

315: Structural Geology. 3-2-3. Preq., Geology 111, 112, 121, Math 112 and Engineering 151. The recognition, representation, interpretation, and mechanics of rock deformation. Sp.

316: Map Interpretation. 6-0-2. Preq., Geology 305 and 315. Interpretation of topographic maps, aerial photographs, geologic maps and geologic cross sections. Sp.

318: Environmental Geology. 0-3-3. Preq., Geology 111 or consent of instructor. Discussion of current environmental geology issues, including risk assessment, population growth, energy resources, sustainable agriculture, deforestation and waste disposal.

320: Summer Field Course. 6 hours credit. Preq., Geology 211, 302 and 316, English 303. Course work at the Louisiana Tech geology camp.

420: Directed Study of Geologic Problems. 1-3 hrs credit. Preq., senior standing. Special topics within the student's field of interest. Maximum 3 hours credit. F, W, Sp.

421: Micropeleontology. 3-2-3. Preq., Geology 302. Study of microfossils used in correlation of well cuttings and outcrop samples, especially foraminifera. Sp.

422: Environmental Remediation. 0-3-3. Evaluation of alternative surface and subsurface cleanup technologies with emphasis on site assessments, pilot studies, treatment techniques, and the preparation of corrective action plans.

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.

450: Seminar. 0-1-1. Preq., senior standing in geology. Written or oral reports in various phases of geology.

460: Hydrogeology. 3-2-3. Preq., Geology 211, 305, and Math 220 or 230. Effect of geologic materials and processes on availability, movement, and quality of ground and surface water. Includes monitoring, resource, evaluation, and water quality analysis. F.

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, erosional, depositional and geochemical processes, field and laboratory methods. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory.

GERMAN

101-102: Elementary German. 0-3-3 each. Conversation, reading, and grammar.

201-202: Intermediate German. 0-3-3 each. Preq., German 102. Conversation reading, grammar, and culture.

301: Survey of German Literature to 1800. 0-3-3. Preq., German 202 or instructor's consent.

302: Survey of German Literature from 1800. 0-3-3. Preq.,

German 202 or instructor's consent.

303: Classical German Literature. 0-3-3. Preq., German 202 or equivalent. A study of German classicism, including Lessing, Goethe, Schiller.

305: Advanced German Grammar. 0-3-3. Preq., German 202 or equivalent. An intensive course in German grammar with special attention to technical German.

307: German Conversation. 0-3-3. Preq., German 202 or instructor's consent.

308: German Composition. 0-3-3. Preq., German 202 or instructor's consent.

309: German Civilization. 0-3-3. Preq., German 202 or instructor's consent. Lectures and readings in history, geography, language, arts and general culture.

HEALTH AND PHYSICAL EDUCATION

Health and Physical Education 100 to 199 activity courses will stress basic techniques, rules and participation.

100: Special Group Activities. 3 3/4-0-1 (2). (Pass-Fail). F,W,Sp.

101: Flag Football and Basketball. 3 3/4-0-2. F.

102: Volleyball and Softball. 3 3/4-0-2. Sp.

103: Soccer and Speedball. 3 3/4-0-2. F.

107: Aerobic Running. 3 3/4-0-2. (2). W.

110: Adapted Physical Education. 3 3/4-0-2. For students not physically able to participate in regular activity courses. Statement from physician listing restrictions is required. F, W, Sp.

111: Wrestling. 3 3/4-0-2 (2). W.

112: Practicum. 3 3/4-0-1 (4). Health and Physical Education Fitness/Wellness majors. Students assist a master teacher to learn proper methods of teaching aerobic, weight training, senior adult activities. F, W, Sp.

114: Varsity Sport Participation. 3 3/4-0-2 (3). Credit for varsity participation in a sport. May be repeated for up to 6 hours credit. Will not count for Health & Physical Education majors/minors. F, W, Sp.

115: Varsity Sport Participation. 3 3/4-0-2 (3). Credit for varsity participation in a sport. May be repeated for up to 6 hours credit. Will not count for Health & Physical Education majors/minors. F, W, Sp.

116: Varsity Sport Participation. 3 3/4-0-2 (3). Credit for varsity participation in a sport. May be repeated for up to 6 hours credit. Will not count for Health & Physical Education majors/minors. F, W, Sp.

117: Varsity Sport Participation. 3 3/4-0-2 (3). Credit for varsity participation in a sport. May be repeated for up to 6 hours credit. Will not count for Health & Physical Education majors/minors. F, W, Sp.

119: Basketball and Volleyball. 3 3/4-0-2. W.

121: Recreational Sports. 3 3/4-0-2. W.

132: Beginning Tap Dance. 3 3/4-0-2. W.

134: Development Conditioning. 3 3/4-0-2 (3). Designed to improve and maintain a desirable level of aerobic fitness by various forms of appropriate physical activity. W.

141: Beginning Golf. 3 3/4-0-2. Learning basic golf skills and rules with limited play for beginning student with no experience. F.

143: Fencing. 3 3/4-0-2. W.

145: Social Dance. 3 3/4-0-2. W.

150: First Aid. 0-2-2. Lectures, discussions, and practical demonstrations of Red Cross methods in First Aid. F,W,Sp.

161: Square, Folk, and Country/Western Dance. 3 3/4-0-2. F, W.

173: Beginning Archery. 3 3/4-0-2. Sp.

181: Beginning Swimming. 3 3/4-0-2. Open to students who are unable to swim in deep water. F.

Health and Physical Education 200 to 299 activity courses for those desiring more indepth knowledge. The courses will stress theories, principles, and techniques of skill development.

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 and Volleyball. 2 3/4-1-2. Sp.

202: Foundations of Health and Physical Education, Fitness Wellness, and Sports Science. 0-3 3/4-3. Preq., Sophomore Standing. Designed to provide physical education students with information in the professional areas of Health and Physical Education, Fitness/Wellness, and Sports Science.

205: Tumbling and Floor Exercise. 2 3/4-1-2. F.

207: Principles and Practices of Coaching Minor Sports. 0-2-2. Preq., Sophomore standing. Study of minor sports from viewpoint of teacher and coach. F.

210: Beginning Weight Training. 2 3/4-1-2 (4). F, W, Sp.

211: Powerlifting. 2 3/4-1-2 (4). F, W.

213: Fishing and Boating Safety. 2 3/4-1-2. F, Sp.

214: Hunting and Gun Safety. 2 3/4-1-2. W.

218: Beginning Karate. 2 3/4-1-2 (4). F, W.

219: Intermediate Karate. 2 3/4-1-2 (4).

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.

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.

231: Beginning Modern Dance. 2 3/4-1-2. W.

232: Intermediate Modern Dance. 2 3/4-1-2. Preq., Health & Physical Education 231. W.

235: Beginning Racquetball. 2 3/4-1-2. F, W, Sp.

236: Intermediate Racquetball. 2 3/4-1-2 (4). Preq., Health & Physical Education 235.

241: Intermediate Golf. 2 3/4-1-2. Preq., Health & Physical Education 141. Review of strokes, rules, and strategies. Tournament play. F, Sp.

250: Gymnastics. 2 3/4-1-2. Health & Physical Education Majors Only. Sp.

251: Materials and Methods in Teaching Elementary School Physical Education. 1-2 3/4-3. Preq., Sophomore standing, HPE majors and minors only. Methods and materials used in teaching elementary school physical education with practical application.

255: Lifetime Sports Series A - Racquet Sports. 2 3/4-1-2. Health & Physical Education majors/minors only. Emphasis on learning and teaching the fundamental skills/techniques, rules, and strategies in racquet sports.

256: Lifetime Sport Series B - Aerobic Conditioning/Strength Conditioning/Aquatics. 2 3/4-1-2. Health & Physical Education majors/minors only. Emphasis on learning and teaching the fundamental skills/techniques and physiological principles in aerobic, strength, and aquatic conditioning activities.

257: Lifetime Sport Series C - Selected Recreational Sports. 2 3/4-1-2. Health & Physical Education majors/minors only. Emphasis on learning and teaching the fundamental skills/techniques, rules, and strategies used in selected recreational sports.

262: Beginning Bowling. 2 3/4-1-2. F, W, Sp.

263: Intermediate Bowling. 2 3/4-1-2. Preq., Health & Physical Education 262.

265: Team Sport Series A - Flag Football/Soccer. 2 3/4-1-2. Health & Physical Education majors/minors only. Emphasis on learning and teaching the fundamental skills/techniques, rules, and strategies in flag football and soccer.

266: Team Sport Series B - Volleyball/Basketball. 2 3/4-1-2. Health & Physical Education majors/minors only. Emphasis on teaching the fundamental skills/techniques, rules, and strategies in volleyball and basketball.

267: Team Sport Series C - Softball/Track and Field. 2 3/4-1-2.

Health & Physical Education majors/minors only. Emphasis on learning and teaching the fundamental skills/techniques, rules, and strategies in softball and track. Sp.

271: Beginning Tennis. 2 3/4-1-2. Learning basic tennis skills, fundamentals, rules, and strategy for beginning players with limited or no experience. F.

272: Beginning Badminton. 2 3/4-1-2. W.

273: Intermediate Badminton. 2 3/4-1-2. Preq., Health & Physical Education 272 or intermediate skill level. Review of badminton skills, rules, fundamentals, and strategies. Skill development and class competition emphasized. W.

274: Intermediate Tennis. 2 3/4-1-2. Preq., Health & Physical Education 271 or intermediate skill levels. Review of tennis skills, fundamentals, rules, and strategy. Conditioning and class competition. F, Sp,

275: Aerobic Dance and Conditioning. 2-1-2 (4). F, W, Sp.

280: Dance Appreciation. 0-3-3. An overview of the historical, cultural and social impact of dance. Includes classifications of major dance styles, interpretations of dance and major contributors to dance. F, W.

281: Intermediate Swimming. 2 3/4-1-2. Open to students who can swim in deep water. Stroke development and endurance swimming are emphasized. W.

283: Lifeguard Training. 1 3/4-2-3. Preq., Level V and VI Swimming Skills. American Red Cross Lifeguard Training. Prepares and certifies individuals to assume the duties and responsibilities of lifeguards at swimming pools and protected (non-surf) open water beaches.

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.

289: Water Exercise for Fitness. 2 3/4-1-2 (3). Individualized program to enhance fitness through aquatic activity.

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 of early adulthood. 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. 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, W.

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. The social, emotional, economic, and legal impact of safety and accidents in the home, at work, and in leisure/sports activities. W, Sp.

301: Curriculum Innovations, Instructional Devices and Lab Instruction in Drivers Education. 3 3/4-3-4. Indepth 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. The organization and administration of high school and college intramural programs. The student is required to assist in intramurals at Tech.

305: Materials and Methods in Health Education in Schools. 0-3-3. Preq., Health & Physical Education 290, 292, 293 and Upper Division Status. Includes information relative to school health education program with emphasis on methods of instruction and use of materials in schools. F.

306: Principles and Practices of Football Coaching. 0-2-2. Preq., junior standing. Designed to familiarize the student with various defensive and offensive systems that contribute to a successful program. F.

307: Principles and Practices of Coaching Softball. 1-2 1/2-2. Preq., Sophomore standing. Emphasis on coaching competitive softball. Fundamental skills of offense and defense, training principles, scouting, strategy, and organization of practice are stressed.

308: Principles and Practices of Coaching Baseball. 0-2-2. Preq., sophomore standing. Emphasis on coaching competitive baseball. Fundamental skills of offense and defense, training principles, scouting, strategies, and organization of practice are stressed.

312: Principles and Practices of Basketball Coaching. 0-2-2. Preq., sophomore 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., sophomore standing. Fundamentals of team offense and defense. Training and practice; scouting and strategy; officiating. W.

314: Principles and Practices of Track and Field Coaching. 0-2-2. Preq., sophomore standing. Fundamental movements involved in the different events: staffing for the different events; training and practice; officiating. Sp.

316: Exercise and Sport Psychology. 3 3/4-0-3. Preq., Consent of Department Head, Upper Division. Psychological aspects of exercise and sport with emphasis on mental preparation for athletic performance.

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.

320: Management and Administration of Health and Physical Education. 0-3-3. Preq., upper division. Development and practical application of health and physical education programs. F, W.

326: Applied Anatomy and Kinesiology. 0-3-3. Preq., junior standing, Biological Sciences 225, Upper Division or consent of Department Head. 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. 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, W, Sp.

350: Drugs and Sport. 1-3 3/4-3. Preq., HPE majors or intercollegiate athletes. Develop a knowledge of drugs, effects, sound use, preventive drug abuse, effective programs for drug education and athletes.

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.

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.

383: Water Safety Instructor. 1 3/4-2-3. Preq., HPE 281 or Level V, VI, VII Swimming Skills. Certifies instructor candidates to teach water safety and swimming courses. Sp.

400: Fitness for the Senior Adult. 2 3/4-1-3. May be taken by senior adults for repeated credit. Senior adult exercise programs are designed utilizing chair and water exercises, strength machines, and walking. F, W, Sp.

401: Recreation and Leisure for the Older Adult. 0-3-3. Recreation and leisure in an aging society. Leadership, programming, and activities for older adults. Emphasis on programs in a variety of settings.

402: Measurement and Evaluation in Health and Physical Education. 0-2 1/2-2. Preq., Upper division. Designed to familiarize the physical educator with statistical methods,

measurement of physical parameters, and procedures for effective written and skill test construction and evaluation.

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.

405: Sports Medicine and First Aid. 0-2-2. Preq., Health & Physical Education 326, upper division. Prevention, treatment and rehabilitation of athletic injuries and first aid procedures. Sp.

406: Health Aspects of Aging. 0-3-3. Preq., upper division. Provides an understanding of the health aspects of aging as it pertains to the biological, physiological, psychological, and sociological factors in mature adults. Sp. *

407: Exercise Prescription. 2-2-3. Preq., upper division. Provides an understanding of individualized exercise prescription design in programs to develop and maintain physical fitness through testing and re-evaluation strategies. *

408: Physiology of Exercise. 2-2-3. Preq., upper division. Basic human physiology with emphasis on the physiological changes and residues of exercise. W.

409: Measurement of Physiology Variables. 2 1/2-0-1. Concurrent with HPE 408, upper division. Exercise physiology laboratory experience providing students with an opportunity to measure and evaluate selected physiological parameters.

410: The Designing, Building, and Maintenance of Sport and Physical Fitness Facilities. 0-3-3. Preq., upper division. The equipping, designing, building, and maintenance of physical fitness 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.

412: History of Sports. 0-3-3. A study of sports from ancient to modern times.

414: Introducing Adapted Physical Education. 0-3-3. Preq., Upper Division. To familiarize the student with the role of adapted physical education and the physical, emotional, social and learning characteristics of exceptional children. Sp. *

415: Internship. 15-3-6. Consent of Department Head and within two quarters of graduation. Practical experiences in agency, institution, educational and/or recreational programs with department approved supervisors. F, W, Sp.

416: Adult Fitness Programming. 2 1/2-1-3. Preq., Health & Physical Education 406, upper division. Course is designed to instruct individuals in implementation of fitness programs and management of the various facilities which include fitness management. *

417: Motor Development, Health Processes, and Safety Procedures in Education of the Disabled. 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 disabling conditions.

418: Strength and Conditioning for Improved Performance. 3 3/4-0-3. Preq., Health & Physical Education 326, 407, upper division. Procedures to strengthen and condition individuals in aerobic and anaerobic activities. Exercise models, performance evaluations, exercise equipment, training ethics, and professional development are discussed. Sp. *

433: Special Problems in Health and Physical Education. 1-3 hour(s) credit (9). Consent of Department Head. Designed for selected problems in Health and Physical Education. F, W, Sp.

457: Materials and Methods in Teaching Middle and Secondary School Physical Education. 1-2 3/4-3. Preq., Health & Physical Education 251, upper division-senior standing. Methods and materials used in teaching middle and secondary schools physical education with practical application.

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.

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.

509: Tests and Measurement. 0-3-3. Using current research to select the best procedures to measure and test the student's physical fitness, motor ability, sports skills, and cognitive knowledge.

515: Internship. 15-3-6. Preq., Graduate students in Health and Physical Education. Practical experience in rehabilitation centers and corporate/community/educational/ and/or medical fitness/wellness centers. Observation and leadership opportunities.

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.

518: Recent Literature and Research in Physical Education, Physical Fitness and Wellness. 0-3-3. Review and evaluation of reports of recent research in physical education. Review of research methodology for analysis of both qualitative and quantitative nature.

519: Alcohol and Narcotics Education. 0-3-3. Research and evaluation of the effects of alcohol and narcotics.

520: Motor Development and Learning. 0-3-3. Nature of motor learning and development, factors affecting success in skill learning and improving physical performance.

521: Behavior Impairment and Physical Education. 0-2-2. Preq., Health & Physical Education 414. Physical education for the severely disabled. Course focuses on disabled individuals with implications for teaching motor activities.

522: Observing and Teaching in Adapted Physical Education with the Behavior Impaired. 3-0-1. Preq., and concurrent with 521. Practicum in physical education for the severely disabled.

523: Chronic Disability and Physical Education. 0-2-2. Focus is on individuals with chronic and permanent physical disabilities which affect motor performance with implications for selection of activities in physical education.

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.

526: Physiology of Exercise. 0-3-3. Understanding the physiological responses of the body systems to exercise, the recovery process, and systematic training regimens.

527: Foundations of Physical Education. 0-3-3. History and philosophy of physical education and of current trends and developments.

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.

530: Administration of Recreation. 0-3-3. 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.

532: Interscholastic Athletics. 0-3-3. Prepares the interscholastic coach to understand the purposes of state and national athletic associations, legal issues in sports, and the administration of athletic programs.

533: Problems in Health, Physical Education, Recreation and Athletics. 1-3 hour(s) credit (6). Consent of Department Head. Credit depends on the nature of the problem and work to be accomplished. 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.

536: Physiology of Exercise II. 0-3-3. Preq., Health & Physical Education 526. A continuation of Health & Physical Education 526 designed to enhance understanding of physiological responses to acute and chronic exercise as it relates to performance and health-related fitness.

539: Sports Psychology. 0-3-3. Course designed to explore the behavior of individuals participating in play, game and sports.

540: Sport Impact on Society. 0-3-3. The impact of sports upon the American culture with focus on competition, economics, mythology, race relations and the Olympic syndrome.

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.

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. F.

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.

550: Current Trends and Issues in Health, Physical Education, and Sport. 0-3-3. A survey of recent literature and research to determine current trends and issues in health, physical education, and sports.

HEALTH INFORMATION MANAGEMENT

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.

106: Health Information Management Directed Practice. 3-0-1. Preq., Minimum grade of "C" in Health Information Management 107 and 108 and minimum curriculum GPA of 2.25. Directed experience in the medical record departments of acute care facilities performing basic routine medical record procedures. F, Sp.

107: Introduction to Health Information Management. 0-3-3. Preq., Health Information Management 103 and the Health Occupations Basic Entrance Test (HOBET). An introduction to the field of Health Information Management (HIM), professional ethics, and the basic functions of the HIM department. W, Sp.

108: Laboratory Practice in Basic Health Information Management Procedures. 3-0-1. Preq. or Coreq., Health Information Management 107. An introduction to applications of modern technology and software for admissions, deficiency analysis, chart assembly, data retrieval and data storage. F, W, Sp.

200: Health Statistics. 0-2-2. Preq. A minimum grade of "C" in Mathematics 110, Merchandising and Consumer Studies 246 and Health Information Management 107. Computation, presentation, and computer application of commonly reported healthcare statistics; vital statistics; and introduction to data collection methods, analysis, and presentation. F, Sp.

204: Medical Transcription. 3-1-2. Preq., Merchandising and Consumer Studies 246, minimum grade of "C" in Health Information Management 103, 107, 280, and ability to type 20 wpm. Introduction to transcription of record forms and supervision of the medical transcription function. F.

206: Classifications, Nomenclatures, and Reimbursement. 0-2-2. Preq. a minimum grade of "C" in Health Information Management 103 and 107. An introduction to a variety of classifications, nomenclatures and reimbursement methods. F, Sp.

207: Coding and Classifying Diseases and Procedures. 0-3-3. Preq. or coreq. Health Information Management 206 and preq. Health Information Management 280. Basic coding using the latest edition of the International Classification of Diseases. F, W.

208: Laboratory Practice in Coding. 3-0-1. Coreq., Health Information Management 207. Practical application and laboratory practice in coding using ICD-9-CM. F, W.

209: Advanced Coding and Coding for Reimbursement. 3-2-3. Preq. Minimum grade of "C" in Health Information Management 207. Advanced coding instructions and the application of coding principles as they affect reimbursement; the prospective payment system; and the ethical issues related to reimbursement. W, Sp.

213: Advanced Coding Laboratory. 3-0-1. Preq. Health Information Management 206, 207, 208, and 209. Practice in coding in-patient and out-patient records using manual and computer techniques. Sp, F.

214: Health Information Computer Applications. 3-0-1. Preq. Merchandising and Consumer Studies 246, Health Information Management 205, 222, and 224. Computer applications in health statistics using spreadsheets and graphic display. Health care data storage and retrieval using optical disk. Health information abstracting for cancer registry and utilization management and computerized release of information. F, W, Sp.

222: Governmental and Accreditation Requirements In Acute Care Facilities. 0-3-3. Preq. Minimum grade of "C" in Health Information Management 107. Joint Commission on Accreditation of Healthcare Organizations standards and state licensing requirements for hospitals. An introduction to Medicare and Medicaid. F, Sp.

223: Organization, Licensure and Accreditation in Alternative Settings. 0-2-2. Preq. Minimum grade of "C" in Health Information Management 107. Home health, hospice, cancer registry, clinics, managed care, extended care, and mental health. An introduction of APG's and RBRV's. W, Sp.

224: Continuous Quality Improvement, Risk Management, and Utilization Review. 0-3-3. Preq. Minimum grade of "C" in Health Information Management 107. Techniques of continuous quality improvement, utilization review, risk management, and case management. F, Sp.

226: Legal Aspects of Health Information Management. 0-2-2. Preq. Health Information Management 104. A study of the principles of law as applied to the health field and medical record practice. W.

228: Health Information Services. 0-2-2. Preq. Health Information Management 222, 223, 224 and Management 201. Application of supervisory techniques to health information services. Sp.

233: MRT Management Affiliation. 40-0-8. Preq. Minimum of 2.25 GPA in the MRT curriculum. All coursework must be complete. Scheduled the quarter of graduation from the MRT program. An overview of health information management in ambulatory and acute care settings. F, Sp.

280: Introduction to Medical Science. 0-3-3. Preq., Biological Sciences 225, 226, and minimum grade of "C" in Health Information Management 103. A study of the nature and cause of disease. F, Sp.

311: Fundamentals of Medical Science. 0-2-3. Preq., Minimum grade of "C" in Health Information Management 280. Signs, symptoms, diagnostic tests, and treatment of common diseases. W.

321: Healthcare Information Systems. 0-2-2. Preq., Health Information Management 213 and 214. Introduction to healthcare information systems with emphasis on clinical and administrative applications and system implementation. Sp.

325: Joint Commission on Accreditation of Healthcare Organizations Performance Improvement Standards. 0-2-2. Preq., Health Information Management 224 or consent of instructor. JCAHO performance improvement standards with emphasis on important functions of the healthcare facility and assessment of the dimensions of performance as they relate to health information services. W.

416: Research Methods. 3-2-3. Preq., Life Sciences 420 and Health Information Management 214. An introduction to the application of the scientific method and research design to health information management. W.

421: Health Information Systems. 3-0-1. Preq., Management Information Systems 435 and Health Information Management 321. Projects in design, development and implementation of health information systems. Sp.

430: Health Information Management. 0-3-3. Preq., Management 311, 470, and 472 and a minimum grade of "C" in all Health Information Management 100 and 200 level courses in curriculum. Management principles applied to the administration of health information systems. Sp.

431: Laboratory Practice in Administration of the Health Information System. 3-0-1. Preq. or coreq., Health Information Management 430. Laboratory practice using evaluation procedures to assist in problem-solving and decision-making. F, Sp.

450: MRA Management Affiliation. 40-0-8. Preq., Minimum of 2.25 GPA in the MRA curriculum. All coursework must be complete. Scheduled the quarter of graduation from the MRA program. The student will observe and participate in healthcare information management in non-traditional and acute care settings. F, Sp.

HISTORY

History 101 and 102 are normally regarded as prerequisites for advanced non-American history courses. History 201 and 202 are normally regarded as prerequisites for advanced American history courses. Exceptions can be made with permission of the department head.

101: World History to 1500. 0-3-3. A survey of civilization of the world to 1500. Major emphasis on Western Civilization. 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. F, W, Sp.

201: History of the United States, 1492-1877. 0-3-3. A survey of American history from discovery through Reconstruction. 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. 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.

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 1824. 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.

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. *

430: History of the Ancient Near East. 0-3-3. A survey of the civilizations of the Near East from earliest beginnings to 330 B. C. F, even. *

432: The Roman Republic. 0-3-3. A study of the political, cultural, economic, and social history of Rome from earliest beginnings to the end of the Republic. W. *

433: The Roman Empire. 0-3-3. A study of the political, cultural, economic, and social history of Rome during the period of the Empire. Sp. *

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.

447: History of China. 0-3-3. Traces the development of Chinese civilization from its earliest origins to the present.

448: History of Japan. 0-3-3. Traces the historical and cultural development of Japan from the earliest times to the present.

450: History of the Old South. 0-3-3. A study of the political, economic, and social development of the antebellum South. odd; Sp, even.

450: History of Louisiana. 0-3-3. A study of Louisiana history from early explorations to the present. 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. Preq., 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. 3 hours credit. 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 topic in Latin American history. Sp, odd.

545: Seminar in Near East History. 3 hours credit. 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.

HUMAN ECOLOGY

Courses in the College of Human Ecology are also listed under: Family and Child Studies, Food and Nutrition, and Merchandising and Consumer Affairs.

127: Orientation. 0-1-1 Introduction to roles and responsibilities of College students as preparation for professional careers. F.

189: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Human Ecology. May be repeated for credit.

194: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Human Ecology. May be repeated for credit.

215: Fundamentals of Family and Consumer Sciences Education. 0-1-1. History and development of vocational education and the Agriculture Extension Service as applied to family and consumer sciences. Recent legislation, trends and state requirements.

267: Practica in Human Ecology. 1-3 hours credit (3). (Pass/Fail). Preq., Consent of director of practica. Structured experiences in specialized areas of human ecology. Application required.

289: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Human Ecology. May be repeated for credit.

294: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Human Ecology. May be repeated for credit.

327: Professional Communication in Human Ecology. 6-1-3. Preq., Speech 110. Communication of human ecology subject matter through preparation, implementation, and evaluation of presentations designed for a variety of publics. F.

389: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Human Ecology. May be repeated for credit.

394: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Human Ecology. May be repeated for credit.

405: Family and Consumer Sciences Methods. 0-3-3. An understanding of the family and consumer sciences education programs with emphasis on philosophy, principles and methods of teaching in home economics areas. W.

406: Special Problems in Human Ecology. 1-3 hours credit 12). Special offerings selected by student with approval of adviser. May be repeated for credit with Dean's permission. *

415: Seminar in Family and Consumer Sciences Student Teaching. 0-1-1. Coreq., Education 416. Investigation, analysis, and discussion of current problems, philosophy, and trends in home economics education. Sp.

427: Senior Seminar. 0-1-1. Study of emerging professional issues in human ecology. F.

457: Issues in Professional Employment. 0-1-1. Preparation to assume professional roles in the field of human ecology. Designed to be taken one or two quarters prior to graduation. F, W, Sp.

467: Professional Practica in Human Ecology. 1-3 hours credit (6). (Pass/Fail). Preq., consent of instructor or director of practica. Structured experiences in specialized areas of human ecology. Application required.

477: Practica/Internship/Cooperative Education in Human Ecology. 1-6 hours credit (9). (Pass/Fail). On site, supervised, structured work experiences located within a 100 mile radius of Ruston. Application and supervision fee required.

478: Practica/Internship/Cooperative Education in Human Ecology. 1-6 hours credit (9). (Pass/Fail). On site, supervised, structured work experiences located within 101-200 mile radius of Ruston. Application and program fee required.

479: Practica/Internship/Cooperative Education in Human Ecology. 1-6 hours credit (9). (Pass/Fail). On site, supervised, structured work experiences located beyond a 201 mile radius of Ruston. Application and program fee required.

489: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Human Ecology. May be repeated for credit. *

494: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Human Ecology. May be repeated for credit. *

504: Methodology in Human Ecology Research. 0-3-3. Techniques and principles of design for experimental and educational research.

505: Family, Consumer Sciences, and Early Childhood

Education 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 Human Ecology. 1-3 hours credit (12). Multi-quarter project preq. or coreq., Human Ecology 504 or Statistics. Directed study of adviser approved topics. May be repeated for credit with Dean's permission. F, W, Sp.

507: Graduate Seminar. 0-1-1 (3). Seminar designed to increase effectiveness of professional written and oral communications, as well as increase knowledge of research.

515: Human Ecology Teaching Practicum. 10-1-3. Principles and techniques in teaching a specific area of human ecology at the post secondary level. Students work with faculty and undergraduate courses in area of specialty. Application required.

546: Microcomputer Applications in Professional Practice. 0-3-3. Preq., Merchandising & Consumer Studies 246 or consent of instructor. Using software and microcomputers in various professional practice and research settings.

551: Research and Thesis. 3 hours credit or multiples thereof. Maximum credit is 6 hours. Preq. or Coreq., Human Ecology 504 and Statistics.

589: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Human Ecology.

594: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Human Ecology.

INDEPENDENT STUDY

498-499: Readings and Research. 1-3 (6) hours credit. Preq., admission to Independent Study program. Departmental course for independent research and reading. Offered by each department in the College of Arts and Sciences. 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. F.

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. W.

301: Industrial Cost Analysis. 0-3-3. Analysis and control o manufacturing costs.

400: Engineering Statistics. 0-3-3. Preq., Mathematics 231. Application of probability and distribution theory to various branches of engineering. Confidence intervals, hypothesis testing, regression analysis.

401: Engineering Statistics. 0-3-3. Preq., Industrial Engineering 400. Analysis of variances, quality control, reliability, and life testing.

402: Introduction to Operations Research. 0-3-3. Coreq. Industrial Engineering 400. Linear programming, dynamic programming, project scheduling, network flow, inventory control.

404: Operations Research. 0-3-3. Preq., Industrial Engineering 400, 402. Industrial engineering applications of queuing theory, 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 221. Detail planning for plant location, buildings, services, materials handling and transportation.

409: Production Engineering. 3-2-3. Preq., Mechanical Engineering 221 or consent of the instructor. Methods engineering, work measurement, and production standards.

410: Operations and Facilities Design I. 0-2-2. Preq., Industrial Engineering 400, 409 and current enrollment in Industrial Engineering 408. Introduction to industrial engineering manufacturing. Designing and analyzing market research, location study, parts lists, material and machine requirements. F.

411: Operations and Facilities Design II. 0-2-2. Preq., Industrial Engineering 410. Continuation of Industrial Engineering 410, to include production routing, material handling, equipment selection, direct and support personnel requirements, organizational charts, support facilities, quality control and inspection plans. W.

412: Operations and Facilities Design III. 0-2-2. Preq., Industrial Engineering 411. Continuation of Industrial Engineering 411 to include packaging requirements, workstation design, building and utility specifications, insurance, financial reports, plant layout, computerized plant layout, oral presentations. Sp.

413: Industrial Robotics and Automated Manufacturing. 3-2-3. 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.

490: Applications of Artificial Intelligence and Expert Systems in Mechanical and Industrial Engineering. 3-2-3. Preq., permission of instructor. Introduction to artificial intelligence, expert systems and their applications in industrial, mechanical and manufacturing engineering systems.

499: Technical Enrichment Course. 3-0-1. Preq., consent of instructor. Pass/Fail. Varying new technologies. Does not count towards graduation in Industrial Engineering Contact the department for more information. F,W,Sp.

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 transhipment 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 402 or equivalent, Engineering 401. 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.

516: Production Planning and Sequencing. 0-3-3. Advanced methods in production planning. Sequencing criteria and algorithms. Job shop and flow shop sequencing. Computer application and simulation.

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.

530: Advanced Topics in Manufacturing Automation and Robotics. 3-2-3. Advanced issues in the strategic approach to product design and manufacturing systems design. Integration of islands of automation. Product design for automation. Prerequisite: Industrial Engineering 413 or instructor's consent.

550: Special Problems. 1-4 semester hours credit. Advanced problems in industrial engineering.

551: Research and Thesis in Industrial Engineering. Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six semester hours.

555: Practicum. 0-3-3 (6). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research literature.

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. Involves 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. Sp.

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 dummying of pages. Sp.

320: Feature Writing. 0-3-3. Preq., Journalism 101, 102. Practical instruction in gathering material for "human interest" and feature articles of various types for magazines as well as newspapers. F.

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. Sp.

350: Practical Reporting. 6-0-2. Open only to journalism majors or minors. Preq., Journalism 101, 102, 310, 320. Writing of articles for the university newspaper upon assignment or consultation with faculty supervisor. May be repeated for two additional semester hours credit. F, W, Sp.

353: General Newspaper Work. 6-0-2. Open only to journalism majors or minors. Preq., Journalism 101, 102, 310, 320. 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, 102, 310, 320. 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., 9 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. W.

460: 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. 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. 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 juniors 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.

210: Libraries and Librarianship. 0-3-3. Introductory survey of libraries and librarianship designed for students entering the profession.

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.

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.

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.

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.

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.

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.

435: Internship in Library Science. 1-3 (6) hours credit. Preq., twelve semester hours of Library Science. Supervised library science experience in the elementary or secondary school. (Pass-Fail).

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. *

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 story-telling and creative drama. *

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. *

LIFE SCIENCES

189: Special Topics. 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

194: Special Topics. 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

289: Special Topics. 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

294: Special Topics. 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

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. F, W, Sp.

301: Basic Genetics Laboratory. 3-0-1. Fundamental experiments designed to show application of laws of inheritance in selected organisms. F, W, Sp.

309: Microcomputers for Life Sciences. 0-3-3. Introduction to microcomputers with specific applications in DOS, BASIC, spreadsheet, and word processing as applicable to the life sciences. Also offered as Forestry 309. F, W, Sp.

321: Cooperative Education Work Experience. 40-0-1 (8) with no Coreq., Or, 16-0-1 (8) with Coreq. 7 hours of course work. Advanced paid work experience in the student's major. Appropriate to cumulative course work. F, W, Sp.

322: Cooperative Education Work Experience. 40-0-2 (4). Paid work experience in the student's major. Appropriate to cumulative course work. F, W, Sp.

323: Cooperative Education Work Experience. 40-1-3 (6). Preq., Sophomore status. Advanced paid work experience in the student's major. Appropriate to cumulative course work. 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.

389: Special Topics. 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

394: Special Topics. 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

420: Statistical Methods. 0-3-3. Preq., sophomore standing or above. Methods of designing experiments and analyzing biological data. 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. F, W, Sp.

489: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Life Sciences. May be repeated for credit.

494: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Life Sciences. May be repeated for credit.

509: Life Sciences Seminar. 0-1-1 (2). Survey of literature on current topics in either Bacteriology, Botany, Microbiology, or Zoology, where appropriate.

530: Life Sciences Special Problems. 1-6 hours. Preq., written permission of instructor and Advisory Committee Chairperson. No more than 6 hours credit combined with Life Sciences 540 and 541.

540: Life Sciences Internship. 40-0-3. Preq., Graduate standing, consent of Advisory Committee Chairperson and Instructor. Career-oriented job experiences. No more than 6 hours credit combined with Life Sciences 530, 540, or 541.

541: Life Sciences Internship. 40-0-3. Preq., Graduate standing, consent of Advisory Committee Chairperson and Instructor. Career-oriented job experiences. No more than 6 hours credit combined with Life Sciences 530, 540, or 541.

551: Research and Thesis. Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six hours.

589: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Life Sciences.

594: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Life Sciences.

LOUISIANA EDUCATION CONSORTIUM

701: Utilizing Technology for Statistical Analysis in Education. 0-3-3. This course surveys procedures for using the computer in text editing, data management, and statistical processing of research data.

702: Evaluation Theory and Practice. 0-3-3. This course investigates the theories and practices associated with performance evaluation, focusing on individual, instrument, and program evaluation and the decision-making processes associated with each.

703: Qualitative Research in Education. 0-3-3. This course examines theories and methods of qualitative educational research, including ethnography, case studies, interview studies, and document analysis.

704: Sociocultural Issues in Education. 0-3-3. This course examines and analyzes sociocultural issues relating to the delivery of educational services in school districts with diverse student populations.

705: Problem-Solving and Decision-Making Processes. 0-3-3. Applied strategies and techniques involved in problem-solving behaviors are presented. Models of decision-making are explored with emphasis on methods and processes in decision-making.

706: Interpersonal Communication and Conflict Resolution. 0-3-3. Methods and styles of positive interpersonal communication and techniques and methods of conflict resolution utilized by administrators and faculty are presented.

707: Curriculum Theory and Design. 0-3-3. This course focuses on school curriculum theory, design, revision, reform and critical issues.

708: Models of Teaching: Theories and Application. 0-3-3. Preq., Louisiana Education Consortium 707 or concurrent enrollment. This courses builds the requisite knowledge and skills for selecting and implementing various teaching models congruent with specific teaching and learning needs.

709: Research on Effective Teaching and Learning. 0-3-3. This course examines research-based theories and practices of teaching and learning, including diagnosing student needs and selecting appropriate learning strategies.

710: Foundations and Procedures for Professional Development. 0-3-3. This course focuses on analysis of the professional environment with emphasis on procedural strategies for professional development as evidenced by teaching, service, and research.

711: Advanced Theory and Research in Educational Leadership. 0-3-3. Conceptual models used to define and explain learning organizations and the investigation of leadership roles, strategies, and methods.

712: Advanced Principles of Organization and Administration of Schools. 0-3-3. Organization and administration of schools, including fundamental concepts of organization, administration, and management are explored.

713: Foundations of Human Resource Development. 0-3-3. Theories of human resource development and exemplary models are identified and analyzed. Utilization of human resource information system technology is included.

714: Policy Analysis and Power Structure. 0-3-3. Educational policy processes in school administration and supervision, authority and responsibility, public policy, power structure, school boards, principalships, and superintendency roles are presented.

715: Advanced Content Methodology and Techniques. 0-3-3. This courses analyzes and evaluates content-specific methods, techniques, and trends for early childhood, elementary, middle and secondary education.

716: Problems and Issues in Curriculum and Instruction. 0-3-3. This course analyzes and evaluates current curriculum concepts and designs as well as major trends in curriculum and instruction for K - 12 settings.

717: Grants Planning and Management. 0-3-3. Strategies are presented to identify relevant funding sources at the local, regional, and national levels and to prepare, submit, and manage effective proposals.

718: Principles and Practices in Instructional Supervision. 0-3-3. Strategies and techniques of supervising instruction are presented and reviewed. Models of supervising instructional programs are analyzed, interpreted, and evaluated.

777: Internship. 3-6 hours credit (Pass/Fail). This course is a supervised on-site educational experience in curriculum, instruction, supervision, or administration.

788: Research Design Seminar. 0-3-3. (6). This course is a research seminar concentrating on the selection and utilization of qualitative and quantitative field-based research designs.

799: Dissertation. 3 hours credit. Maximum credit allowed is 9 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.) 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. 0-3-3. Preq., junior standing. Studies principles of human behavior in complex organizations; including organization structure and design, motivation, leadership, interpersonal communication, group dynamics, job design, organizational and national culture. F, W, Sp.

333: Operations Management. 0-3-3. Preq., Quantitative Analysis 233. Analysis and design of decision and production systems including application of inventory control, forecasting, quality control, and linear programming. 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. Sp. *Management 350 (at GSU).

400: Entrepreneurship/New Venture Creation. 0-3-3. Preq., Management 340 and senior standing. A study of the entrepreneur's role in business, including an introduction to the process of developing an idea into a feasible business plan. W.

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. Sp. **Mgt. 320 (at GSU).

446: Traneportation. 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. W, 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. 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., Management 333. Management principles as applied to industrial production with emphasis on manufacturing strategy, just-in-time, quality control, scheduling, plant layout, and supplier relations. W. *

476: Systems and Operations Management. 0-3-3. Advanced studies and problems in the planning, management, and control of industrial operations. Scheduling, capacity, and shop floor control are emphasized. Sp. *

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, Sp. *

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. F. *

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. F, W, Sp.

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. F, Sp.

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. 3-3. Preq., Management 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.

547: Seminar in Industrial Relations. 0-3-3. An in-depth study of current issues in the area of labor-management relations. Sp.

560: Materials Management. 3-2-3. Basic concepts of the materials management function including quality management, MRP II, scheduling, inventory management, purchasing, materials handling, JIT, and manufacturing strategy.

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. W.

580: Seminar in Venture Assessment and Management. 0-3-3. An indepth seminar applying the tools of analysis from functional business areas to the problems of proposed and existing firms utilizing actual cases. W.

595: 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. W.

610: Current Issues in Management. 0-3-3. Seminar in the problems of top management as they relate to the firm's environment. Sp.

615: Seminar in Behavioral Research Methodology. 0-3-3. May repeat one time for credit. Analysis and intensive study of research and research methodology utilized in the behavioral sciences. The method of science as applied to management is emphasized.

620: Doctoral Seminar in Research. 0-3-3. May be repeated one time for credit. Research on individual topics. Should be taken near completion of course work. W.

MANAGEMENT INFORMATION SYSTEMS

101: Introduction to Business Information Systems. 0-3-3. Concepts of information systems including use of electronic computers. F, W, Sp.

330: Management Information System Analysis and Design. 0-3-3. Preq., Junior standing. An indepth, life cycle approach to analysis and design. Use of CASE tools. Project required.

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. F.

339: Business Applications with COBOL. 0-3-3. Preq., junior standing. Applying program and file structures to design programs for business applications. Development of COBOL language skills for coding the designs. W.

423: Database System Management. 0-3-3. Preq., junior standing. Managing and communicating the data resource using database principles and user-oriented data languages. Sp. *

435: Information Management. 0-3-3. Preq., Junior level Common Body of Knowledge for CAB or consent of instructor. Information systems for decision making, information resource management, and application areas for information technology.

436: Management Information System Implementation. 0-3-3. Preq., Management Information Systems 339 and 435. Advanced applications in systems design and utilization of current programming packages. An individual project is required. Fall. *

443: Telecommunications Management. 0-3-3. Preq., junior standing. Concepts of telecommunication systems including voice and data transmission, carrier services, national and international regulations, distributed information systems, and network management. W. *

445: Network Management. 0-3-3. Preq., Management Information Systems 443. Issues of designing, implementing, and controlling computer networks. Emphasis on Managerial issues of design goals, connectivity, service, costs and control. Sp.

510: Information Resource Management. 0-3-3. Attention is given to strategic implementation of technology, secure and effective systems, externally focused systems, along with the historical and social environment of information systems.

515: Decision Support Systems. 0-3-3. Information technology in the firm and non-profit organization with a focus on using computers, data bases, knowledge bases, graphics, and models to support decision making.

535: Advanced Computer Applications. 0-3-3. Study of the development and application of Expert Systems and use of development shells. Topics include: Knowledge Acquisition, System Development, and Validation/Verification.

550: Individual Research Problems. 1-3 hours. Time and credit to be arranged. Special problems in information systems. Research report required which describes the problem, method of study, and study results.

630: Seminar in Management Information Systems. 0-3-3. Study of current topics in the discipline of Management Information Systems. In-depth analysis of a specialized research field along with an investigation of the literature.

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).

300: Marketing Principles and Policies. 0-3-3. Preq., Economics 202 or 215 and junior standing. Marketing functions; institutions; policies and strategies with their business, economic, and social implications. 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. F, W, Sp.

320: Consumer Behavior. 0-3-3. Preq., junior standing. A study of the consumer and the relation to the marketing process. 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. F, W. *

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. F, 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.

482: Marketing Research. 0-3-3. Preq., Quantitative Analysis 233. A consideration of marketing research as a tool management; application of research techniques to various marketing problems. F, W, Sp. *

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. W.

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. W.

531: Marketing Theory. 0-3-3. Analysis of the evolution of marketing theory. F.

533: Advanced Marketing Research. 0-3-3. An in-depth study of research philosophy, theory, objectives, techniques, and problems as applied to marketing. W.

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. Sp.

537: Seminar in Buyer Behavior. 0-3-3. An in-depth examination of the conceptual and theoretical foundations of consumer and industrial buyer behavior. Sp.

610: Seminar in Price Policies. 0-3-3. Problems and practices involved in formulating and administering price policies.

615: Seminar in Marketing. 0-3-3. May repeated one time for credit. An examination of concepts and research findings related to selected topics in marketing. Presentation and critical evaluation of reports from related disciplines.

MATHEMATICS

Notes About Selected Courses:

1. Upon completing Mathematics 099 the student should enroll in Mathematics 110 the following quarter.

2. Credit may not be given for both Mathematics 111 and Mathematics 125. Students who will later enroll in a calculus course should take Mathematics 111.

099: Developmental Mathematics. 0-4-4. Required if Mathematics ACT score is less than 20 unless a passing score is achieved on Placement Exam A. 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. F, W, Sp.

110: College Algebra. 0-3-3. Preq., Mathematics ACT score is greater than 19 or Placement by Exam or Mathematics 099. Linear equations and inequalities, polynomials, rational expressions, exponents, radicals, complex numbers, graphing, quadratic equations and word problems. F, W, Sp.

111: Precalculus Algebra. 0-3-3. Preq., Mathematics ACT score is greater than 25 or Placement by Exam or Mathematics 110. Miscellaneous equations, inequalities, functions and graphs, systems of equations, matrices and determinants, theory of polynomials, exponential and logarithmic functions, sequences and series, binomial theorem. Credit will be given for only one of Mathematics 111 and Mathematics 125. F, W, Sp.

112: Trigonometry. 0-3-3. Preq. or Coreq., Mathematics 111 or Placement by Exam. Solution of right triangles, reduction formulas, functions of multiple angles, trigonometric equations, inverse functions, and complex numbers. F, W, Sp.

113: Plane Geometry. 0-3-3. Preq., Mathematics 111. 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: Survey of Mathematics. 0-3-3. Preq., Mathematics 110 or Mathematics ACT score is greater than 25. Logic, counting principles, probability and statistics, systems of equations, geometry, mathematics of finance, nature of graphs. For liberal arts degree programs. F, W, Sp.

125: Algebra for the Management and Social Sciences. 0-3-3. Preq., Mathematics ACT score is greater than 25 or Placement by Exam or Mathematics 110. Linear and quadratic equations and functions, graphs, matrices, systems of linear equations, mathematics of finance, sets, probability and statistics, exponential and logarithmic functions. Credit will be given for only one of Mathematics 111 and Mathematics 125. F, W, Sp.

203: Introduction to Number Structure. 0-3-3. Preq., Mathematics 110. Developing number sense and concepts underlying computation, estimation, pattern recognition, and function definition. Studying number relationships, systems, and theory. Applying algebraic concepts to solve problems. F, W, Sp.

204: Conceptual Geometry and Quantitative Analysis. 0-3-3. Preq., Mathematics 203. Studying the geometry of one, two, and three dimensions and applications to problems in the physical world. Exploring probability and statistics in real-world situations. F, W, Sp.

220: Applied Calculus. 0-3-3. Preq., Mathematics 111 and Mathematics 112 or Placement by Exam. Functions and graphs, the derivative, applications of derivatives, indefinite integrals, application of definite integrals. Credit will be given for only one of Mathematics 220, 222, and 230. F, W, Sp.

221: Applied Calculus for Electronics I. 0-2-2. Preq., Mathematics 220. Applications of calculus to electricity and circuit theory. W.

222: Calculus for Business Administration and Economics. 0-3-3. Preq., Mathematics 111 or Placement by Exam. Functions and graphs, the derivative, the indefinite integral and the definite integral; applications as applied to business and economics. Credit will be given for only one of Mathematics 220, 222, and 230. F, W, Sp.

225: Applied Calculus for Electronics II. 0-2-2. Preq., Mathematics 221. Continuation of Mathematics 221 including Transform methods for electrical network analysis. Sp.

230: Analytic Geometry and Calculus I. 0-3-3. Preq., Mathematics 111 and 112 or Placement by Exam. Introduction to analytic geometry, differentiation of algebraic functions, applications of the derivatives, and the antidifferentiation of algebraic functions. Credit will be given for only one of Mathematics 220, 222, and 230. F, W, Sp.

231: Analytic Geometry and Calculus II. 0-3-3. Preq., Mathematics 230. Applications of integration, analytic geometry, exponential and logarithmic functions, trigonometric functions, and techniques of integration. F, W, Sp.

232: Analytic Geometry and Calculus III. 0-3-3. Preq., Mathematics 231. Analytic geometry of conics, indeterminant forms, improper integrals, polar coordinates, infinite series, Taylor's formula. F, W, Sp.

233: Multidimensional Calculus. 0-3-3. Preq., Mathematics 232. Solid analytic geometry, vector-valued functions, partial differentiation, multiple integrals, topics in vector calculus. F, W, Sp.

307: Contemporary Mathematics for Secondary School Teachers. 0-3-3. Preq., Mathematics 232. Sets, relations, functions, equations, inequalities, proofs, development of the integers and rational numbers, evaluation of experimental programs in mathematics. Sp.

308: Introduction to Linear Algebra. 0-3-3. Preq., Mathematics 233. Matrices, systems of linear equations, vectors, vector spaces, linear transformations, eigenvalues and eigenvectors. F, W, Sp.

311: Discrete Mathematics I. 0-3-3. Preq., Mathematics 232. Logic, sets, functions, finite and infinite sets, permutations and combinations.

312: Discrete Mathematics II. 0-3-3. Preq., Mathematics 311. Binomial and Multinomial Theorems, principle of inclusion-exclusion, recurrence relations, directed graphs, network flows, and selected topics.

313: Introductory Numerical Analysis. 0-3-3. Preq. Mathematics 232 and Computer Science 102 or equivalent. Introduction to numerical techniques in finding roots of equations, solving systems of equations, approximating functions, derivatives and integrals. F.

318: Introduction to Abstract Algebra. 0-3-3. Preq., Mathematics 307 or 311. Fundamental set concepts, groups, rings, integral domains, fields, polynomials. F.

340: Introduction to Real Analysis. 0-3-3. Preq., Mathematics 233; 311 or 307. A rigorous introduction to the calculus of functions of one real variable.

350: Ordinary Differential Equations. 0-3-3. Preq., Mathematics 233 or equivalent. Equations of first order, applications to geometry and physics, homogeneous and nonhomogeneous linear equations of higher order, mechanical vibrations, power series solutions, Laplace transforms, systems. F, W, Sp.

401: College Geometry. 0-3-3. Preq., Mathematics 113 or equivalent, Mathematics 232; or consent of instructor. Logical systems and basic laws of reasoning, axiomatic geometry, geometric transformations, selected Euclidean geometry, non-Euclidean and projective geometrics. 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. F. *

410: Advanced Engineering Mathematics. 0-3-3. Preq., Mathematics 233 and 350. Mechanical systems and electrical circuits, Fourier series, Laplace transforms, partial differential equations. *

411: Advanced Engineering Mathematics. 0-3-3. Preq., Mathematics 233. Vectors spaces and linear transformations, applications of matrices, vector analysis, calculus of variations.*

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 Tiemann 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, Hillbert's "Grundlagen," algebraic structure, the modern mathematical method, sets, logic and philosophy. *

414: Numerical Analysis. 0-3-3. Preq., Mathematics 308, Knowledge of FORTRAN, or consent of instructor. Roots of polynomial and other nonlinear equations. Solutions of systems of simultaneous equations. Numerical applications of matrix theory and linear algebra. Interpolating polynomials. *

415: Numerical Analysis. 0-3-3. Preq., Mathematics 350, 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 233, 308, 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, quadretic programming, dynamic programming. *

445: Theory of Functions of Complex Variables. 0-3-3. Preq., Mathematics 233. 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, plant autonomous systems.*

455: Mathematical Modeling. 0-3-3. Preq., Mathematics 350, Statistics 448, or consent of instructor. Building deterministic and probabilistic models; applications from physical and life sciences. Transient and stationary models, stability, and optimal solutions. Model validation: acceptance, improvement, or rejection. *

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 350. 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 sequences and series of vectors and matrices, convergence of iterative techniques for linear systems. Numerical differentiation and integration. Numerical solutions of differential equations.

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 functions, Eilenberg-Steenrod axioms, construction of the nomology and cohomology groups, homology of finite complexes, universal coefficient theorems, Eilenberg-Zilben theorem, the conhomology 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 233 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 Lebesque measure, abstract integration with emphasis on the Lebesque integral.

581: Mathematical Analysis. 0-3-3. Preq., Mathematics 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.

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.

214: Engineering Materials. 0-3-3. Preq., Chemistry 102. A study of the basic principles which relate mechanical behavior of engineering materials to structure; including metallic, ceramic, polymeric, and composite materials; corrosion of metals. F, W.

215: Engineering Materials Laboratory. 3-0-1. Preq., Chemistry 102. Coreq., Mechanical Engineering 214. A laboratory course studying the experimental behavior of engineering materials. Labs will include hardness testing, impact testing, tensile testing, and heat treating of materials. F, W.

221: Manufacturing Processes I. 3-1-2. Preq., Engineering 151. Coreq., Mechanical Engineering 214. 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.

323: Manufacturing Processes II. 3-0-1. Preq., Mechanical Engineering 221. Fundamentals of advanced manufacturing techniques. 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. Cross-listed with Chemical Engineering 331.Fundamental concepts, properties of a pure substance, work, heat, first and second laws of thermodynamics, entropy, cycle analysis. F.

333: Thermofluids I. 0-3-3. Preq., Mechanical Engineering 331 and Engineering Mechanics 203. Fundamental concepts of fluid mechanics and heat transfer. Design of Thermodynamic cycles. Continuity, energy and momentum equations. Advanced topics in thermodynamics. W.

343: Thermofluids II. 3-4-5. Preq., Mechanical Engineering 291, 333, 381. Continuation of Mechanical Engineering 333, with applications in viscous flow, conduction, convection and radiation. Introduction to thermal/fluid systems design. Sp.

361: Advanced Mechanics of Materials. 0-3-3. Preq., Engineering Mechanics 203, 311 and Mechanical Engineering 214. Theories of stress and strain, failure criteria, energy methods, design for static strength, design for fatigue strength. Sp.

371: Dynamic Systems. 3-2-3. Preq., Mechanical Engineering 291, Engineering Mechanics 203, Coreq., Mechanical Engineering 331. Modeling and design of dynamic mechanical and fluid systems. Introduction to linear vibrations and automatic controls. Numerical and Laplace transform solutions to ordinary differential equations. W.

381: Basic Measurements. 3-2-3. Preq., Engineering 102, Electrical Engineering 226, 229. Experimental methods, data reduction and analysis, a survey of instrumentation, the fundamentals of measuring equipment. F.

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.

413: Composite Materials Design. 0-3-3. Preq., Mechanical Engineering 361. An introduction to modern composite materials. Application of lamination theory to analysis of composites. Deformation and failure of composites. Structural design using composite materials.

414: Failure Analysis. 0-3-3. Preq., Mechanical Engineering 361. An introduction to failure analysis. Using analysis of failed parts to determine the cause of failure. Using failure analysis techniques to design to avoid failure.

432: Renewable Energy Design. 0-3-3. Preq., Mechanical Engineering 333 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 333 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 333. Theory of IC engines. Fuels, combustion and thermodynamics. Carburation and fuel injection. Lubrication. Mechanical design of a typical engine. *

436: Air Conditioning and Refrigeration. 0-3-3. Preq., Mechanical Engineering 333 and 343. Analysis and design of heating, ventilating and air conditioning systems for residential, commercial, and industrial applications. *

438: Industrial Energy Conservation. 0-3-3. Preq., Chemical Engineering 331 or Mechanical Engineering 331. Identification and analysis of energy conservation opportunities in the manufacturing and process industries.

446: Advanced Fluid Mechanics. 3-2-3. Preq., Mechanical

Engineering 333 and Mathematics 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., Mechanical Engineering 333 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. *

450: Special Problems. 1-4 hours credit. Preq., senior standing 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 343. Design of thermal components and systems. F.

455: Heat Exchanger Design. 0-3-3. Preq., Mechanical Engineering 343, 361. A study of the thermal and mechanical design of heat exchangers. *

462: Machine Design I. 3-2-3. 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. 0-3-3. Preq., Mechanical Engineering 291, Engineering Mechanics 203. Kinematic analysis, synthesis, and design of linkages, cams, and gears. Dynamic analysis and design of mechanisms and balancing. W.

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.*

469: Prevention of Mechanical Failure. 0-3-3. Preq., Mechanical Engineering 463. Analysis, prediction and prevention of failures in a structure or machine part during the design phase. *

476: Feedback Control Systems. 3-2-3. Preq., Mechanical Engineering 371. 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. 3-2-3. Preq., Mechanical Engineering 371. introduction to free and forced linear vibration of discrete and continuous mechanical systems. Analysis of translational and rotational systems using analytical and numerical methods.

478: Engineering Acoustics. 0-3-3. Preq., Mathematics 350. Analysis and design of systems for noise control, including vibration isolation, silencers, room acoustic treatment and acoustic barriers. *

484: Mechanicsl Engineering Laboratory I. 3-0-1. Preq., Mechanical Engineering 381, 361, English 303. Design and performance of materials and solid mechanics laboratory experiments in mechanical engineering. F.

485: Mechanical Engineering Laboratory II. 3-0-1. Preq., Mechanical Engineering 381, 343, English 303. Design and performance of thermofluids laboratory experiments in mechanical engineering. W.

486: Mechanical Engineering Laboratory III. 3-0-1. Preq., Mechanical Engineering 484, 485. Design and performance of laboratory experiments in mechanical engineering. Sp.

488: Solids Modeling in Engineering Design. 0-3-3. Preq., Instructor's consent. Engineering design using 3-d graphics, constructive solid geometry, boundary representations, parametric surfaces and data exchange standards. *

490: Applications of Artificial Intelligence and Expert Systems in Mechanical and Industrial Engineering. 3-2-3. Preq., permission of instructor. Introduction to artificial intelligence, expert systems and their application in industrial, mechanical and manufacturing engineering systems.

492: Mechanical Engineering Design I. 3-1-2. Preq., Mechanical Engineering 212, 323, 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.

496: Computational Techniques in Mechanical Engineering. 0-3-3. Preq., Mechanical Engineering 343. 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 343 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. *

499: Technical Enrichment Course. 3-0-1. (6) Preq., consent of instructor. (Pass/Fail). May be repeated for a maximum of 6 hours of credit. Varying new technologies. Does not count toward graduation in Mechanical Engineering. Contact the department for more information. F, W, Sp.

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.

511: Modern Engineering Materials. 0-3-3. An introduction to modern engineering materials with an emphasis on light weight or high strength materials such as polymers, composites, and high strength steels.

521: Machining Analysis. 3-2-3. The force and power analysis of material removal processes; analytical and finite element modeling and experimentation to determine process variables and relation to part quality.

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 gasses; 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.

551: Research and Thesis in Mechanical Engineering. Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six semester hours.

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.

555: Practicum. 0-3-3 (6). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research techniques.

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.

586: Design Optimization. 0-3-3. Preq., Mechanical Engineering 467 or consent of instructor. Constrained nonlinear minimization algorithms applied to mechanical engineering design problems.

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.

589: Computer Animation in Engineering. 0-3-3. Preq. Mechanical Engineering 488. Computer generated animation for display of dynamic simulation or analysis results using solids models and color graphics.

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 Mechanical Engineering 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 Engineering 543 and Mechanical Engineering 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 Engineering 575, Electrical Engineering 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 Engineering 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

215: Thermal Science. 0-3-3. Preq., Mathematics 112. Temperature; heat; work; first law of thermodynamics; basic principles of heat transfer. W.

MERCHANDISING AND CONSUMER STUDIES

118: Pattern Design and Construction. 6-1-3. Introduction to basic pattern making techniques, fit, and construction. Some emphasis on techniques, commercial patterns, and ready-to-wear construction.

119: Apparel Evaluation. 3-2-3. Introduction to the study of analysis of ready-to-wear and accessories from retail and consumer viewpoints.

158: Survey of the Fashion Industry. 0-2-2. Overview of fashion industry and fashion marketing techniques. Emphasis on history, design, production, and retail phases of business.

218: Analysis of Children's Apparel. 0-1-1. Analysis of apparel for infants and young children.

219: Textiles I. 0-3-3. Study of fiber properties and production of textiles.

236: Residential Equipment. 0-3-3. Study of residential equipment market and the evaluation of residential equipment.

238: Apparel Selection and Analysis of Fashion. 0-3-3. Contemporary apparel needs of individuals and families with recognition of cultural, economic, and psychological factors.

246: Microcomputers in Personal and Family Management I. 3-2-3. An introduction to the use of microcomputers for more effective management of personal and family related tasks.

256: Individual and Family Management. 0-3-3. A systems approach to the management of personal and family resources. W, Sp.

258: Professional Selling Experience. 8.5-1-3. Preq., Human Ecology 127 or consent of instructor. Supervised experience in salesmanship with firms cooperating with the College of Human Ecology. Sp.

258: Apparel Design I. 3-2-3. Preq., Merchandising & Consumer Studies 219. Application of principles related to the creation, fabrication and execution of apparel design. Sp.

276: Environments for Young Children. 0-1-1. Preq., Family and Child Studies 201 or consent of instructor. Principles of housing and equipment applied to creating learning environments for infants and young children.

308: Buying. 0-3-3. Preq., Merchandising & Consumer Studies 258. Buying function in retail organizations. Includes merchandising concepts essential for buyers. W.

338: Intermediate Apparel Construction. 6-0-2. Preq., Merchandising & Consumer Studies 118 or consent of instructor. Emphasis on evaluation and use of advanced construction techniques including tailoring and couture methods.

348: Merchandising and Computer Management. 1-2-2. Preq., Merchandising & Consumer Studies 246 and 308. Procedures and task management for the retailer through computer application. Sp.

356: Families as Consumers. 0-3-3. Preq., Economics 215. Application of principles of consumerism to family decisions related to time and money use.

366: Consumer Issues. 0-3-3. Issues that arise between sellers/government and consumers including legislation, regulation and safety issues.

368: Computer Design Applications. 3-2-3. Preq., Merchandising

& Consumer Studies 246 and 268. Introduction of CAD applications in the design and production of apparel and textiles.

388: Media Planning and Promotion. 3-2-3. Preq., Merchandising and Consumer Studies 258 and 348. Study and application of principles of product promotion. Emphasis on coordination of customer targeting, communications, media presentation, and special events. W.

416: Interior Space Planning and Furnishings. 0-3-3. Preq., Merchandising and Consumer Studies 219. Study of the furnishings, fixtures, and design components for residential and commercial interiors.

419: Textiles II. 0-3-3. Preq., Merchandising & Consumer Studies 219 or consent of instructor. Study of textile products in relation to end-use, product quality, technology and trade regulations. Sp. *

426: Housing. 0-3-3. Social aspects of housing including zoning, government regulations, and purchase considerations.

428: Apparel Design II. 3-2-3. Preq., Merchandising & Consumer Studies 118 and 268, or consent of instructor. Flat pattern and draping techniques in developing original design. Emphasis on appropriate use of line, color, and texture.

429: Issues in Merchandising. 0-3-3. Preq., senior standing. Domestic and international issues affecting merchandising and consumer studies. Sp. Alternate Years. *

436: Advanced Individual and Family Management. 4-2-3. Preq., Merchandising and Consumer Studies 256, and advanced junior standing. Planning, coordinating, and evaluating all phases of individual and family management.

439: Historic Costume I. 0-3-3. Development of costume from ancient Egypt through the 17th century, with emphasis on social, economic, and aesthetic influences on its design.

440: Historic Costume II. 0-3-3. Development of costume from 18th century until the present, with emphasis on social, economic, and aesthetic influences. *

445: Microcomputer Applications for Personal Use. 0-1-1 (3). Selected topics relating to the use of microcomputers in home and family management.

446: Microcomputers in Personal and Family Management II. 0-3-3. Preq., Merchandising & Consumer Studies 246. Advanced study in the use of microcomputers in personal and family 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. *

466: Consumer Relations. 0-3-3. Professional strategies and tactics in consumer studies programs.

468: Creative Fashion Presentations. 6-1-3. Preq., Merchandising & Consumer Studies 268 and 388. Fundamentals of apparel and textile presentation. Includes sketching and creative presentation in various mediums.

488: Visual Merchandising. 3-2-3. Preq., Merchandising & Consumer Studies 388 or consent of instructor. Promotion of products through visual merchandising techniques including display and store layout and design.

498: Fashion Merchandising International. Three hours graduate or undergraduate credit. European or Domestic fashion study tour. Application required. May be repeated with permission of the Dean. Sp.

508: Advanced Apparel Design and Production Techniques. 6-1-3. A study of apparel production and consumer motivation. Special problems in apparel 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.

516: Family and Consumer Economics Issues. 0-3-3. (12) Analysis of family and consumer in the larger economic and political systems.

528: Consumer Motivation and Factors in Apparel. 0-3-3. Relationship of consumer behavior to fashion; analysis of factors relative to production, distribution, and consumption of apparel and textiles.

536: Consumer Needs of Older Population. 0-3-3. Issues facing consumer affairs professionals working with the older consumer.

556: Current Trends in Consumer Decision Making. 0-3-3. (12) Preq., Merchandising & Consumer Studies 456 or consent of instructor. Recent advances and current research in behavior of the consumer with reference to economic decision making and expenditure patterns relevant to current lifestyles.

MUSIC

102: Theory. 2-2-2. Preq., diagnostic exam. Beginning study of fundamentals of music covering the areas of notation, ear-training, sight singing, and functional keyboard. F.

103: Theory. 2-2-2. Preq., Music 102. Continuation of 102 increasing emphasis on common-practice harmonic vocabulary. W.

104: Theory. 2-2-2. 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.

148: Applied Synthesizer. 1-2 semester hours. Individualized basic instruction in the techniques of performance on the synthesizer.

199: Synthesizer Ensemble. 2-0-1 (12). A live performance laboratory for student synthesists. The synthesizer ensemble will provide, additionally, an outlet for student composers, arrangers and conductors.

201: Theory. 1-2-2. 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. 1-2-2. Preq., Music 201. Continuation of 201. W.

203: Theory. 1-2-2. 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. Sp.

217: Opera Workshop. 0-1-1 (6). A function study in opera performance including vocal, dramatic, and technical aspects of opera production. F, W, Sp.

248: Applied Synthesizer. 1-2 semester hours. Preq., 6 semester hours of Music 148 and consent of instructor. Individualized intermediate instruction in the techniques of performance on the synthesizer.

250: Introduction to Music Synthesis. 0-2-2. A survey of synthesis past and present with emphasis on its use in live performance.

260: Synthesis Techniques. 0-3-3. A continued study of synthesis and its use in more sophisticated systems, with an emphasis on the exploration of FM digital technology.

290: 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. 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.

334: Appreciation and Application of Music. 0-3-3. Preq., Junior standing. Provides an understanding and appreciation of the elements of music through various media. F, W, Sp.

348: Applied Synthesizer. 1-2 semester hours. Preq., 6 semester hours of Music 248, consent of instructor and successful completion of Junior standing examination in applied music. Individualized advanced instruction in the techniques of performance on the synthesizer.

350: Synthesis Systems. 0-3-3. Exploration of MIDI and various MIDI instruments, such as: drum machines, sequencers, mappers, microcomputer programs, effects processors in system usage.

360: Advanced Synthesis Projects. 0-3-3 (6). Advanced MIDI systems projects, selected in accord with the student's objectives, and realized through live performance, studio synthesis or composition.

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.

448: Applied Synthesizer. 1-2 semester hours. Preq., 6 semester hours of Music 348 and consent of instructor. Advanced mastery of the techniques of performance on the synthesizer. May be taken for graduate credit.

450: Special Problems. 1-4 semester hours. Preq., consent of adviser. Credit depends on the nature of the problem. May be repeated for credit. 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. 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. 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.

474: Seminar. 0-1-1. Discussions and guided research based upon professional problems which confront the musician and the teacher. F, W, Sp.

475: Seminar. 0-1-1. Continuation of 474. 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.

484: Survey of Opera Literature. 0-3-3. Preq., permission of instructor. Designed to cultivate in students understanding and enjoyment of opera by surveying selected significant operatic works through viewing and analyzing.

486: Survey of the American Musical Theatre. 0-3-3. Preq., Music 330 or Speech 378. Designed to increase the understanding and appreciation of the American Musical Theatre genre. Representative musical theatre works, composers, lyricists, directors, and performers will be studied.

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.

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.

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 adviser. 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 adviser. 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.

562: Piano Pedagogy. 0-2-2. Organization and application of piano teaching on the college level, includes observation and practice teaching. W.

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.

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.

MUSIC (Applied)

Applied music courses are divided into two main divisions: 1) private lessons and 2) applied music classes.

Private lessons are designated by the section numbers "11, 12, 13, etc.".

Applied music classes are designated by the section numbers "01, 02, 03, etc.".

Private lessons are divided into eight sub-divisions: Piano, Organ/Harpsichord, Voice, Synthesizer, Strings/Guitar, Woodwinds, Brass, and Percussion.

The first digit of an applied music course signifies the level of study: 1 - Non-music major or secondary study, 2 - Lower Division, 4 - Upper Division.

The second digit signifies one of the eight sub-divisions as follows: 1 - Piano, 2 - Organ/Harpsichord, 3 - Voice, 4 - Synthesizer, 5 - Strings/Guitar, 6 - Woodwinds, 7 - Bass, 8 - Percussion.

The final digit designates the number of hours credit. Each course number may be repeated for credit as necessary in order to complete the requirements for each degree program. In order to be eligible to register for 400-level courses a student must pass an upper-division jury. This is usually done in the spring of the Sophomore year. This rule applies only to Music Majors. Non-music Majors may enroll as is in each case appropriate according to the limitations of the applied instructor's schedule. Non-music majors may, at their option, elect to pass an upper-division jury in order to qualify for 300-level courses.

All students must have the approval of the applied music instructor before registering for private lessons.

Applied music classes are divided into sub-divisions: 1) courses designed for the general studies student or "non-music major" which do not pre-suppose any previous musical study. In the quarterly class schedule these courses are listed in the usual manner followed by the notation "beginners" or "non-music majors", and 2) courses which are designed for music majors as minor applied requirements or as methods courses for music students interested in teaching. These courses are designated by the notation "music majors" or "methods class".

100 courses: Instruction for non-music majors and secondary study for music majors.

200 courses: Lower Division study for music majors in the primary area.

400 courses: Upper Division study for music majors in the primary area.

Music (Ensemble)

144: Choir, 1 credit hour optional.

166: Orchestra, 1 credit hour optional.

177: Band, 1 credit hour optional.

199: Synthesizer, 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. 0-2-2. 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: Introduction to Application of the Nursing Process. 8-0-3. Coreq., Nursing 109. Affords student 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: Adult Health Maintenance I. 8-3-5. Preq., Nursing 109 and 110 and credit or registration in Biological Sciences 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.

113: Introduction to Associate Degree Nursing. 0-0-10. Emphasizes the nursing process and basic human needs with introduction to associate degree nursing roles. Principles are applied with validation in the clinical setting.

114: Adult Health Maintenance II. 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: Adult Neuro/Psycho-Social 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.

210: Maternal/Newborn Health Maintenance. 8-3-5. Preq., Nursing 116. A study and application of principles and concepts of family-centered matemity care. Emphasis on nursing care of clients during antepartal, intrapartal, postpartal and newborn periods. F, Sp.

212: 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.

OFFICE ADMINISTRATION

102: Typewritten Communication. 0-3-3. Preq., Basic knowledge in typewriting/keyboarding. 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.

104: Advanced Keyboarding Applications. 0-3-3. Preq., Office Administration 102. Working efficiently with script, rough-draft, statistical copy; abstracting information from computer printouts; preparing simulated documents relative to various fields (law, medicine, accounting, etc.). W.

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.

211: Information Processing Applications. 0-3-3. Preq., Office Administration 210. Simulated office experience situations utilizing machine transcription and text-editing skills.

214: Principles of Shorthand. 0-3-3. Theory of Speedwriting Shorthand system. Principles stressed through reading and writing business communication in shorthand.

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.

216: Advanced Transcription. 0-3-3. Preq., Office Administration 215. Continued development of speed and fidelity in recorded dictation. Transcription skill developed with emphasis on production of mailable copy.

250: Office Management. 0-3-3. The role of office management in business; managing human resources; communications; ergonomics; records cycle; telecommunications; current problems and practices; business information systems.

307: Advanced Keyboarding and Information Processing. 0-3-3. Development and enhancement of computer skills using current software programs with emphasis on word processing and spreadsheet applications as used in office systems. Sp.

PETROLEUM ENGINEERING

100: Introduction to Petroleum Engineering. 3-0-1. (Pass/Fail). A survey of topics to introduce the student to the profession, to the department, and to the curriculum.

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.

202: Exploration and Drilling. 0-3-3. Preq., Mathematics 111. Principles and methods of oil field exploration and drilling.

250: Petroleum Computer Solutions. 0-3-3. Preq., Engineering 102. Micro-computers, BASIC and FORTRAN programs will be used to solve petroleum engineering problems.

305: Laboratory. 6-2-4. Preq., Petroleum Engineering 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. 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. 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.

475: Applied Petroleum Engineering. 3 hours credit (12). Preq., consent of instructor. Application of logging, reservoir, and economic engineering techniques to field cases.

480: Design of Petroleum System. 0-3-3. For Senior Petroleum Engineering majors, this course draws upon previous coursework and challenges creativity with open-ended design problems including synthesis, analysis, construction, testing, and evaluation.

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.

551: Research and Thesis in Petroleum Engineering. Registration in any quarter may be for three semester hours credit or multiples thereof. Maximum credit allowed is six semester hours.

555: Practicum. 0-3-3 (6). Preq., 12 semester hours of graduate work. Analytic and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research techniques.

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. F, W.

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 beginning 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.

102: Introductory Physics. 2-1-1. An introductory survey of physics, use of library resources, and basic computation.

103: Introductory Physics. 2-1-1. A continuation of Physics 102.

104: Introductory Physics. 2-1-1. A continuation of Physics 103.

201: General Physics. 0-3-3. Preq., Mathematics 230. Coreq.,Physics 261. Thorough treatment of fundamental principles and detailed analysis of important physical situations. F, W, Sp.

202: General Physics. 0-3-3. Preq., Physics 201 and Mathematics 231, Coreq., Physics 262. A continuation of Physics 201. F, W, Sp.

205: Descriptive Physics. 0-3-3. For non-science majors interested only in the cultural aspects of the subject. F, W, Sp.

206: Descriptive Physics. 0-3-3. A continuation of Physics 205. 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. F, W, Sp.

210: Elementary Physics. 0-3-3. Preq., Physics 209. A continuation of Physics 209. F, W, Sp.

220: Astronomy - The Solar System. 0-3-3. An introduction to Astronomy, covering the history of Astronomy and the Solar System. Credit will not be allowed for both Physics 207 and Physics 220.

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.

230: Astronomy - The Stars and Galaxies. 0-3-3. An introduction to Astronomy, covering the stars, galaxies, and the universe. Credit will not be allowed for both Physics 207 and Physics 230.

261: General Physics Laboratory. 4 1/2-0-1. Preq., Mathematics 111 and 112. Laboratory investigations of basic physical principles. F, W, Sp.

262: General Physics Laboratory. 4 1/2-0-1. Preq., Physics 261. A continuation of Physics 261. 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 position 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. Preq., Mathematics 350, Physics 202. Study of the electrical, thermal, and magnetic properties of solid state materials.

390: Physics of the Solid State. 0-2-2. Preq., Mathematics 350 and Physics 202. Study of the mechanical, thermal and magnetic properties of solid state materials. Sp.

406: Electricity and Magnetism. 0-3-3. Preq., Mathematics 350, Physics 202. A study of the fundamental theories of electricity and magnetism. An application of basic principles is stressed.

407: Electricity and Magnetism. 0-3-3. Preq., Physics 406. A continuation of Physics 406.

408: Electricity and Magnetism Laboratory. 4 1/2-0-1. Experiments in circuitry and in classical electricity and magnetism.

409: Electricity and Magnetism Laboratory. 4 1/2-0-1. Preq., Physics 408. A continuation of Physics 408.

415: Introduction to Lasers. 0-3-3. Preq., Physics 304, 417. 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.

416: Modern Physics. 0-3-3. Preq., Physics 202. An advanced course in general physics stressing the modern developments of the subject.

417: Modern Physics. 0-3-3. Preq., Physics 416. A continuation of Physics 416.

418: Modern Physics Laboratory. 4 1/2-0-1. Laboratory exercises involving the electron and the nucleus.

419: Modern Physics Laboratory. 4 1/2-0-1. Preq., Physics 418. A continuation of Physics 418.

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, Math 350, 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 416, 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. Sp, alternate years.

430: Introduction to Medical Physics. 0-3-3. Preq., Physics 209-210 or 201-202. A basic course in Physics of radiology,

designed for students interested in therapeutical and diagnostic uses of ionizing radiation. *

435: Undergraduate Physics Research. 4 1/2-0-1 (3). Preq., consent of instructor. Introduction to methods of research.

440: Fourier Optics. 0-3-3. Preq., Physics 406, 407, or Electrical Engineering 411. An introduction to the theory of Fourier Optics including optical data processing and holography. *

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. 0-3-3. Preq., 8 hours of Physics or permission of instructor. A survey of modern physics as used by the high school teacher of physics. Emphasis is placed on experimental techniques.

463: Modern Physics for Teachers. 0-3-3. Preq., 8 hours of Physics or permission of instructor. Hands-on experience for teachers developing a physics science program that emphasizes the observational side of Physics.

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 417. 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.

523: Classical Theory of Fields. 0-3-3. Preq., Physics 511, 522. A concentrated study of the dynamics of relativistic particles and electromagnetic fields utilizing the Langrangian and Hamiltonian formulations for fields.

524: Quantum Theory of Fields. 0-3-3. Preq., Physics 523. An advanced course on the quantum structure of field theories. Functional techniques are used to discuss the quantum theory of electroweak and strong interactions.

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.

533: Statistical Mechanics. 0-3-3. Preq., Physics 521. A study of the statistical aspects of modern physical theory. Considers the classical and quantum aspects of many-particle systems.

540: Computational Methods in Physics Modeling and Simulation I. 0-3-3. Computational methods for implementing modeling and simulation of physical systems.

541: Computational Methods in Physics Modeling and Simulation II. 0-3-3. Preq., Physics 540. Computational methods for implementing modeling and simulation of physical systems.

PLANT SCIENCES

101: Introduction to Plant Science. 0-3-3. Basic concepts of production and management of agronomic and horticultural crops. F, Sp.

200: Soil Science Laboratory. 3-0-1. Preq., Chemistry 130, 131, 132, 133. Coreq., Plant Science 202. Laboratory exercises to elaborate fundamental principles of soil properties, soil testing and soil survey reports. F, W, Sp.

202: Soil Science. 0-3-3. Preq., Chemistry 130, 131, 132, 133. Coreq., Plant Science 200. A general study of soil science, emphasizing the relation of soil properties and processes to plant growth. F, Sp.

210: Floriculture. 3-2-3. Principles and practices involved in production of greenhouse, flowering, and foliage crops.

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.

215: Land and Water Management. 3-2-3. Land surveying, erosion control, irrigation, and drainage.

282: Woody Plants I. 3-2-3. Identification of deciduous woody landscape plant material; including culture, propagation and use.

283: Woody Plants II. 3-2-3. Identification of evergreen woody landscape plant material; including culture, propagation and use.

300: Advanced Horticulture Laboratory. 9-0-1. Field trips to experiment stations, large wholesale florists and nurseries, and large horticulture areas.

301: Landscape Design. 3-2-3. Elements and principles of design as applied to the home and other small properties.

302: Environmental Design. 3-2-3. Environmental factors affecting the landscape, including discussion of natural systems, remote sensing and large-scale design.

307: Field Crops. 3-2-3. A study of fundamentals of production, harvesting, storage, marketing and utilization of grain, and fiber crops.

308: Field Crops. 3-2-3. A study of fundamentals of production, harvesting, storage, marketing and utilization of oil and sugar crops.

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.

315: Soil Fertility. 3-3-4. Plant Science 200, 202. Fundamentals of soil fertility and plant nutrients; source, manufacture, use and properties of chemical fertilizers.

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.

320: Plant Propagation. 3-2-3. Principles and practices of sexual and asexual methods or propagating horticultural plants. F, odd.

330: Soil Conservation. 0-3-3. The causes and control of soil and water losses and the maintenance of soil productivity.

382: Herbaceous Plants. 3-2-3. Identification of annual and perennial plants; including culture, propagation and use.

383: Interior Plants. 3-2-3. Identification of tropical foliage and flowering plants; including culture, propagation and use.

400: Special Problems. 3-0-1. 1 credit per quarter, with a maximum of 4 credits. Assignments in floral or landscape design, greenhouse or field production projects or other horticulture practicums.

401: Olericulture. 3-2-3. Methods and practices of home and commercial vegetable production, with emphasis on those adapted to the South. Sp, even. *

402: Pomology. 3-2-3. Home and commercial production of tree

fruits, small fruits and nuts adapted to the South. Sp, odd. *

405: Soil Physics. 3-2-3. Preq., Plant Science 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., Plant Science 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: Soil Chemistry. 3-2-3. Preq., Plant Science 200, 202 and Chemistry 130, 131, 132, 133. A study of the chemical properties of soil solids, solutions 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.

440: Nursery Management. 0-3-3. Production, handling and sales practices in the nursery, greenhouse and garden center. *

441: Landscape Contracting. 3-2-3. Landscape contracting operations; estimating and bidding, plant installation, care and maintenance, design considerations, use of structural elements and irrigation systems. F, odd. *

442: Landscape Maintenance and Garden Revitalization. 3-2-3. Preq., Plant Science 282, 283, 301, or consent of instructor. Techniques, procedures and professional practices involved in maintenance and revitalization of established landscapes, including a discussion of style, historical perspectives, equipment, and contractor-client relationship.

445: Computer Applications in Landscape Design. 3-1-2. Preq., Forestry 309 or consent of instructor. Introduction to the use of computers as tools in Landscape Design, emphasizing practical experience with CADD (Computer-Aided Design and Drafting). W. *

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. 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.

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.

304: The Government of Louisiana. 0-3-3. A study of the functions and structure of the state government of Louisiana including constitutional development.

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.

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.

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.

318: American Political Parties. 0-3-3. A study of political parties as an essential factor in democratic government.

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.

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.

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.

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).

330: The American Presidency. 0-3-3. A study of the American Presidency including its origins, roles, functions, and problems.

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.

350: International Relations. 0-3-3. Preq., one previous course in political scienca or consent of instructor. An introductory study of political contacts between modem nation-states, the origin of nationalism and imperialism, and the causes and effects of power politics.

365: American Foreign Policy. 0-3-3. America's foreign policy doctrines and the factors involved in their formulation, including constitutional framework, presidential and congressional leadership, pressure groups, public opinion, and international environment.

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.

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.

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.).

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.

460: Politics of Developing Nations. 0-3-3. An analysis of the relationship of politics to rapid economic and social change in developing nations and evaluation of policies intended to promote development.

465: Asian Politics. 0-3-3. A survey of interrelationships among Asian nations, their relationships with occidental powers, their international roles, and politics of the region as a whole.

PROFESSIONAL AVIATION

101: Introduction to Aviation. 0-3-3. An introduction to basic aerodynamics, aircraft systems, instrumentation, performance, and aviation weather. Initial preparation for FAA Private Pilot Examination. F, W, Sp.

102: Introduction to Aviation II. 0-3-3. Preq., Professional Aviation 101. An introduction to FAA regulations and procedures, communications, navigation, aviation physiology, and aviation safety. Final preparation for the FAA Private Pilot Written Examination. F, W, Sp.

110: Introduction to Flight. 4-0-1. Preq., Professional Aviation 101, 102 or concurrent enrollment. Provides student 25 hours of simulator/dual/solo flight instruction. Designed to meet flight requirements toward Private Pilot certificate. Special fee.

111: Introduction to Flight. 4-0-1. Preq., Professional Aviation 102 or concurrent enrollment. Provides student with approximately 25 hours of dual/solo flight instruction. Designed to meet flight requirements for FAA Private Pilot flight check. Special fee.

200: Aircraft Powerplant Systems. 0-3-3. Preq., Professional Aviation 101/102. 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 101 and 102. Fundamentals of aircraft electrical systems. F.

206: Intermediate Aviation I. 0-3-3. Preq., Professional Aviation 102. Commercial Pilot Ground School. Aerodynamics, performance, instrumentation, stability and control, and aircraft limitations. F, W, Sp.

207: Intermediate Aviation II. 0-2-2. Preq., Professional Aviation 206. Commercial Pilot Ground School. Advanced navigation, emergencies and unusual situations, introduction to multi-engine aircraft, and aviation safety. Final preparation for the FAA Commercial Pilot Examination. F, W, Sp.

208: Introduction to Computers. 1-2-2. Introduction to computers to acquire computer literacy. Study of hardware, software, systems, and application in aviation.

210: Intermediate Flight. 6-0-1. Preq., Professional Aviation 111 or Private Certificate. Provides the student with approximately 40 hours of flight instruction. Designed to meet the flight requirements for the FAA Commercial Pilot Certificate. Special Fee. F, W, Sp.

211: Intermediate Flight. 6-0-1. Preq., Professional Aviation 210 or Private Certificate. Provides the student with approximately 40 hours flight instruction. Designed to meet the flight requirements for the FAA Commercial Pilot Certificate. Special fee. F, W, Sp.

212: Intermediate Flight. 6-0-1. Preq., Professional Aviation 211. Provides the student with approximately 40 hours flight instruction. Designed to meet the flight requirements for the FAA Commercial Pilot Certificate. Special fee. F, W, Sp.

223: Fixed Base Operations. 0-3-3. Preq., Professional Aviation 101 and 102. Detailed study of the functions and responsibilities of the typical Fixed Base Operator. F.

300: Advanced Aviation Weather. 0-2-2. Preq., Professional Aviation 102. A study of the atmosphere and weather causes, aviation weather reporting systems, weather safety, and interpretation of weather reports, charts and forecasts. Meet weather knowledge requirements for FAA Commercial, Instrument and Certified Instructor rating. F, W, Sp.

303: Aerodynamics. 0-3-3. A study of advanced aircraft design, aerodynamics, and performance. F, Sp.

304: Advanced Aircraft Systems. 0-3-3. Preq., Professional Aviation 200, 205 and 305 or permission of Department Head. Introduction to large transport systems and sub-systems. Sp.

305: Jet Propulsion Systems. 0-3-3. Preq., Professional Aviation 101 and 102. 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 and 110. Instrument Ground School. Attitude instrument flying, airplane instrumentation, advanced radio and radar navigation. F, W, Sp.

307: Advanced Aviation II. 0-2-2. Preq., Professional Aviation 306 and Private Pilot Certificate. Instrument Ground School. Advanced flight planning, communications, navigation, aviation safety, and instrument departure enroute, and approach procedures. Final preparation for FAA Instrument Rating. F, W, Sp.

310: Advanced Flight. 3-0-1. Preq., Professional Aviation 212. Provides the student with approximately 20 hours of dual instrument flight instruction necessary to meet the requirements for the FAA Instrument Rating. Special Fee. F, W, Sp.

311: Advanced Flight. 3-0-1. Preq., Professional Aviation 310. Provides student with approximately 20 hours of dual instrument flight instruction necessary to meet the requirements for the FAA Instrument Rating Flight Check. Special fee. F, W, Sp.

320: Aerospace Science. 0-3-3. Study of the science of aviation. Includes powerplants, vehicle design, navigation systems, space flight, economic considerations, public benefits, and current business trends/industry status. F, Sp.

322: Aviation Law. 0-2-2. Study of aviation law development and application. Case studies. Required for Airway Science curriculum.

331: Air Carrier I. 0-3-3. Preq., Professional Aviation 304, 305. Applied study of large airplane systems. Emphasis on regional air carrier aircraft. Pilot preparation requirements.

332: Air Carrier II. 0-3-3. Preq., Commercial Pilot Certificate. Air Carrier Operations. Study of required pilot operations.

333: Air Carrier III. 0-3-3. Line Pilot Management. An emphasis on career pilot requirements and preparation for crew resource management and pilot decision making training.

400: Theory of Multiengine Flight. 0-2-2. Preq., Professional Aviation 307 and flight through Professional Aviation 310 course or approval of department head. Provides the students with the theory of multiengine instrument flight. Focuses on emergency procedures and performance factors and weather related flight. W.

405: Applied Aviation Theory. 3-2-3. Preq., Professional Aviation 414 and Instructor Rating or approval of department head. 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 operations in the ATC system.

410: Applied Flight/Multi-Engine. 3-0-1. Preq., Professional Aviation 400 or concurrent enrollment. Provides the student with flight instruction necessary to meet the requirements necessary for FAA Multi-engine ratings. Special fee.

411: Applied Flight/FAA Instructor. 3-0-1 (3). Preq., Professional Aviation 400 and 414 or concurrent enrollment. Provides the student with flight instruction necessary to meet the requirements for FAA Instructor certificates and ratings. Special fee

414: Applied Aviation Theory. 3-3-4. Preq., Professional Aviation 307 plus flight through Professional Aviation 212 or approval of department head. Includes fundamentals of flight instruction and analyzes visual reference flight maneuvers. F, W, Sp.

415: Applied Flight/Airline Transport Certificate. 3-0-1 (3). Preq., approval of department head. Provides the student with flight instruction necessary to meet the requirements for FAA Airline Transport certificates and ratings. Special fee.

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 instructions. F, W, Sp.

440: Airline Economics and Management. 0-3-3. An advanced study of airline operation, fleet acquisition, management

techniques, economic considerations, public benefits applications. W.

490: The Government Role in Aviation. 0-3-3. Preq., Senior standing. Historic, current and future governmental control. A study of congressional action, the NAS, the FAA, ICAO, and state and local aviation laws.

491: Flight Safety. 0-3-3. Preq., Senior standing. Historical development of aviation safety, accident/incident analysis and reporting, introduction to accident investigation, human factors, accident prevention and development of aviation safety programs. Sp.

495: Aviation Professionalism. 0-3-3. Preq., senior standing. Study of aerospace industry and career opportunities. Emphasis on business climate and job acquisition procedures in the field. Overview of business, management, and labor practices. F, W, Sp.

496: Internship in Aviation. 3-12 hours credit. Internship in area(s) of specialization. Supervised work in government or industry to gain experience in aviation fields. Minimum 90 clock hours; maximum 360 clock hours.

498: Independent Study. 0-3-3. Preq., Department Head's approval. Directed study of air transportation as part of a foreign and domestic, multi-model transportation system. S, F, W, Sp.

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.

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.

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.

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.

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.

301: Fields of Psychology. 0-3-3. A study of the history of major fields and trends in psychology.

302: Physiological Psychology. 0-3-3. Preq., Biological Sciences 225, 310 (or concurrent enrollment), Psychology 202. An intensive study of the physiology of the nervous system, and its relation to behavior.

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.

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.

305: Practical Psychology. 0-3-3. Preq., Psychology 102. A survey of the practical application of psychological concepts to daily life. Emphasis on human social relationships, self-concept and personal growth.

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.

310: Psychology of Personality. 0-3-3. Preq., Psychology 202. A study of major theories of personality.

312: Psychology of Learning. 0-3-3. Preq., Psychology 202. A survey of current theories of learning.

321: Psychological Testing. 0-3-3. Preq., Psychology 300. An introduction to the principles and practices of psychological testing and evaluation.

400: Behavior Modification. 0-3-3. Applied analysis to individual behaviors using concepts, and principles from experimental analysis of behavior. *

404: Seminar in Psychology. 0-3-3-(9). An intensive survey in selected current topics in the field of psychology. (***Student should contact instructor for more specific criteria.**)

407: Advanced Experimental Psychology. 3-2-3. Preq., Psychology 307. Emphasis on investigating specific learning, motivation, and perception topics from methodological and historical viewpoints.

408: Human Growth and Development. 0-3-3. A seminar for the study of human growth. *

411: Crisis Intervention. 0-3-3. Preq., 6 hours in Psychology and Counseling 400 or approval of department head. Overview of theories, strategies, and service delivery systems in crisis intervention.

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.

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.

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.

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.

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.

460: Field Research in Psychology. 1 - 3 hours credit. (3) 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.

465: Industrial Psychology. 0-3-3. The application of psychological findings and concepts to the industrial environment. *

469: Psychology of Sexual Behavior. 0-3-3. Preq., Psychology 102 and junior standing. Survey of both normal and abnormal sexual behavior and selected techniques employed in sex therapy and counseling.

474: Psychology of Adult Learning and Development. 0-3-3. Provides understanding of cognitive and psychosocial development in young, middle, and later adulthood. Emphasis is on aging process and factors which affect adult learning.

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. (***Student should contact instructor for more specific criteria.**)

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. *

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.

499: Health Psychology. 0-3-3. Preq., Psychology 102. A survey of the systematic application of psychology to the relevant areas of health, disease and the health care system.

500: Individual Testing I. 3-2-3. Preq., Counseling 505. Study of intelligence scale with emphasis upon practice in administering, scoring, and interpreting test results.

501: Introduction to Counseling Psychology. 0-3-3. A survey of trends and issues pertinent to the professional activities of counseling psychologists.

505: Theories in Marriage and Family Therapy. 0-3-3. An overview of marital development and change; principles of family dynamics and functioning.

506: Strategies for Marriage and Family Therapy. 0-3-3. Techniques for aiding married couples and families in distress; parenting strategies.

507: Learning and Development. 0-3-3. Provides an understanding of forces which propel learning and development and enables teachers to help students successfully meet the unique demands of school.

508: Psychological Aspects of Disability. 0-3-3. An examination of attitudes, adjustment problems, sexuality, family and program implications for disabled populations.

509: Psychology of Aging. 0-3-3. An analysis of changes that occur in middle and late adulthood from psychological, cognitive, and social viewpoints.

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: Organizational Psychology. 0-3-3. A survey of current research and theories comprising organizational psychology. Critical-thinking skills are used to evaluate empirical research and current theories in the field.

516: Personnel Psychology. 0-3-3 Topics covered include the professional and legal requirements for personnel selection instruments; design and evaluation of personnel selection systems, designing and conducting job analyses and selection interviews.

517: Training and Development. 0-3-3. Provides the skills necessary to analyze, design, and evaluate training in organizations. Topics include determining training needs, task analysis, learning objectives, training methodologies, and evaluation.

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.

520: Individual Testing II. 3-2-3. Preq., Counseling 505. Study of 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 and Decision-Making. 0-3-3. Examination of the various skills, behaviors, and attitudes required for effective leadership. Includes practices, decision-making, communication and ethical issues related to leadership.

524: Internship in Industrial/Organizational Psychology. 20-1-3. Supervised experiences in an applied setting involving application of skills and field work in Industrial/Organizational Psychology.

541: Research Methods in Behavioral Sciences. 0-3-3. Preq., Psychology 542. A study of the research methods and designs commonly used in the Behavioral Sciences. Emphasis on quantitative methodology and APA writing style.

542: Statistical Methods in Behavioral Sciences. 0-3-3. A study of the statistical methods used to study problems in Behavioral Sciences.

544: Qualitative Research Methods. 0-3-3. Concepts and applications of qualitative research methods including techniques for data collection and analysis are explored.

601: Historical Foundations of Modern Psychology. 0-3-3. Historical development of psychology from its philosophical beginnings to the present.

602: Physiological Psychology. 0-3-3. A study of the neuroanatomical and neurochemical bases of behavior; contributions of physiological processes to fundamental behavioral processes.

603: Sensation and Perception. 0-3-3. Sensory and perceptual phenomena that influence motivation, cognition, and learning.

604: Theories of Social Psychology. 0-3-3. Theory and research concerning interpersonal perceptions, attitude formation and change, social motivation, and interactive processes.

605: Child Psychopathology. 0-3-3. Examines diagnosis and treatment of child and adolescent disorders from empirical, theoretical, and practical viewpoints.

606: Comparative Psychology. 0-3-3. A study of the phylogenetic bases of behavior. Interspecies behavioral similarities and differences are examined as they relate to human behavior.

608: Principles of Human Development. 0-3-3. Biological, psychological, and cultural interrelationships in human development.

609: Personality Theory. 0-3-3. Comparative approach to personality theory from the framework of philosophical issues, definitional problems, and current research issues.

610: Professional Issues and Ethics. 0-3-3. An investigation of legal and ethical issues relevant to the practice of counseling psychology.

612: Advanced Learning Theory. 0-3-3. Psychological aspects of learning, including theoretical and practical applications.

615: Cognitive Psychology. 0-3-3. Contemporary approaches to cognitive psychology; a broad survey of social cognition including attention, cognitive organization, information processing, decision making, and memory.

618: Motivation. 0-3-3. The study of levels of motivation from ethological to cognitive-social motives; relevant motivational theories are used to explain human behaviors.

619: Psychopathology. 0-3-3. Comprehensive review of the etiology of psychological disorders and their diagnosis; clinical research findings are emphasized.

620: Sex Roles and Behavior. 0-3-3. An investigation of the effect of gender upon cognition, affect, and behavior.

624: Counseling Psychology Internship. 3 hours credit. Minimum credit allowed is 12 hours. Preq., completion of departmental requirements and approval of department chairperson. One calendar year of supervised, full-time, on-the-job experience in an APA-approved internship facility.

626: Community Psychology. 0-3-3. A study of community systems, intervention techniques, consultation methods, history and current status of the community mental health movement.

642: Advanced Statistical Methods. 0-3-3. Techniques such as multiple regression, canonical correlation, discriminant analysis, MANOVA, and factor analyses in behavioral research are present.

660: Dissertation Research. May be repeated each quarter for 3 credit hours per quarter. Minimum credit allowed is 15 hours.

QUANTITATIVE ANALYSIS

233: Basic Business Statistics. 0-3-3. Preq., Mathematics 111 or 125 and Management Information Systems 101 or consent of instructor. Descriptive statistics, probability, sampling distributions, confidence intervals, inference, and regression and correlation. Emphasis is given to business applications. F, W, Sp.

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 graduate quantitative methods field of study. W.

430: Management Science Methods. 0-3-3. Preq., Management 333. Linear programming including sensitivity analysis, the transportation problem, inventory analysis, and PERT. F, W, Sp.

431: Simulation. 0-3-3. Preq., junior standing. Design, construction, testing, validation, and operation of simulation models for managerial problems using a simulation language. W. *

432: Intermediate Business Statistics. 0-3-3. Preq., Quantitative Analysis 233. Applied statistical methods utilizing the computerized Statistical Analysis System; multiple regression and correlation, chi square, analysis of variance, and non-parametric methods. F. *

522: Advanced Business Statistics. 0-3-3. Preq., Quantitative Analysis 432. 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. W.

525: Management Science. 0-3-3. Preq., Management 333. Introduction to management science methods, mathematical and dynamic programming; applications of operations research methods to management. F, Sp.

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. Sp.

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.

560: Methods of Business Research. 0-3-3. Formulation of statistical hypotheses germane to business research. Determination of the experimental conditions and extraneous conditions. Methods of measurement and the statistical analysis required.

610: Multivariate Statistics: Business Applications. 0-3-3. Preq., Quantitative Analysis 522. Regression extensions, canonical correlation, multivariate ANOVA, discriminant, business applications, principal components using SAS, SPSS, and BMD, factor and cluster analysis. Sp.

620: Seminar in Management Science. 0-3-3. Study of current topics in the discipline of Management Science. In-depth analysis of a specialized field along with an investigation of the literature.

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.

ROMANCE LANGUAGES

501: Methods and Sources in Romance Scholarship. 0-3-3. Preq., graduate standing. Primary bibliographical sources. Linguistic and literary theories, historical and comparative analysis for research in Romance Languages and literature. Emphasis on Spanish and French.

RUSSIAN

101-102: Elementary Russian I and II. 0-3-3 each. Introduction to contemporary spoken and written forms of Russian; emphasis on communicative competence.

201-202-203: Intermediate Russian I, II, and III. 0-3-3. Preq., Russian 102. Study of the more complex grammatical structures of Russian; emphasis on developing communicative competence and basic skills in reading and writing.

301: Russian Conversation. 0-3-3. Preq., Russian 203. Emphasis on developing conversational fluency in Russian in a variety of academic and social contexts.

302: Russian Composition. 0-3-3. Preq., Russian 203. Development of skills in writing Russian in a variety of academic and social contexts.

303: Russian Phonetics. 0-3-3. Preq., Russian 203. Intensive study of the Russian phonological system; exercises for refining skills in pronunciation, intonation, and stress patterns.

310: Russian Short Prose Fiction. 0-3-3. Preq., Russian 301 or consent of instructor. In Russian. Russian short story, skazka, rasskaz, povest' and the novella. Includes works by Pushkin, Gogol, Lermontov, Chekhov, Babel, Rasputin, Tolstaya, Makanin, and others.

420: Russian Culture and Civilization. 0-3-3. Aspects of Russian culture, origins and development of the Russian language, patterns of everyday life, beliefs, customs, traditions, and major cultural achievements. Offered in English translation.

425: Russian Literature in English Translation. 0-3-3 (9). Representative works of Russian literature from a specific period, movement or genre. May be repeated for credit with a change in topic. Offered in English translation. May not be counted towards a minor in Russian. Also listed as English 425.*

SOCIAL SCIENCE

470: Senior Reading Program. 3 hours credit (9). A reading/research course optional for all majors in geography, political science, and sociology.

SOCIOLOGY

201: Principles and Elements of Sociology. 3-3. An introduction to the structures and processes of group behavior. F, W, Sp.

202: Social Problems. 0-3-3. Selected social problems in contemporary American society.

205: Introduction to Anthropology. 0-3-3. Introduction to the origin and development of man; the nature and development of culture.

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.

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.

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.

308: The Family. 0-3-3. A study of the family as a social institution with comparisons of family life in various societies.

312: Minority Groups. 0-3-3. Minority/dominant relationships, their effect on individuals and the society.

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.

314: Criminology. 0-3-3. Theories of the origins of crime; analysis of specific types of offenders, prevention, control, and treatment.

320: Research Methods. 0-3-3. Preq., Stat 200 or consent of

instructor. Scientific methods and their application in social analysis; procedures in testing sociological theory; collection and evaluation of data.

340: Urban Sociology. 0-3-3 The influence of socio-cultural factors and their consequences for urban America.

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.

401: Social Theory. 0-3-3. Preq., Junior standing. The development of sociological theory and its relation to research.

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.

416: Sociology of Education. 0-3-3. The education system and the larger society; education as a social structure and process; implications for students, parents, teachers, and administrators.

418: Social Control. 0-3-3. Informal and formal regulative processes in social behavior, with reference to techniques and processes of social control.

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.

424: The Sociology of Corrections. 0-3-3. Trends, issues and problems in the field of corrections.

425: Family Therapy. 0-3-3. Preq., Sociology 201 or Family & Child Studies 210 or Sociology 308. A survey of family therapy; the family as a system; theoretical models of modern practice, state laws and policies; code of ethics governing family therapy.

435: Sociology of Aging. 0-3-3. Preq., consent of instructor. Social and biological problems as a consequence of aging. Current issues, deficiencies and resources available to deal with specific problems.

436: Grieving and Loss. 0-3-3. An analysis of loss, grief and bereavement. An assessment of services, programs, treatments, stress reduction techniques and communication skills.

444: Substance Abuse. 0-3-3. Social, cultural and individual problems associated with alcohol and drug use. Family and other group responses. The nature and treatment of alcoholism and drug addiction.

SPANISH

101-102: Elementary Spanish. 0-3-3 each. Conversation reading and grammar. Non-native speakers only. F, W, Sp.

103-104: Spanish in the Language Laboratory. 3-0-1 each. Specific conversational activities. F, W, Sp.

201-202: Intermediate Spanish. 0-3-3 each. Preq., Spanish 102 or equivalent. Structure, cultural reading, conversation. Non-native speakers only. 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 compositions. 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.

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.

380: Readings in Spanish Literature. 0-3-3. Preq., Spanish 202 or 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., Spanish 202 or 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.

403: The Novel in Spain. 0-3-3. Preq., Spanish 380, 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., Spanish 380, 381 or 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., Spanish 380, 381 or consent of instructor. A study of representative novels of Latin America. Mexico excepted. Sp, odd.

408: Spanish Civilization. 0-3-3. Preq., Spanish 380, 381 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., Spanish 380, 381 or consent of instructor. A study of outstanding novels from 1800 to contemporary times.

450: The Spanish Language. 0-3-3. Preq., 21 hours of Spanish or consent of instructor. Advanced grammar. General characteristics of the language, including sources, etymology, dialects. F.

460: Applied Linguistics for Spanish. 0-3-3. Preq., Spanish 450 or consent of instructor. Pertinent theories of psycholinguistics and sociolinguistics. Contrastive study of Spanish and English patterns and structures. W.

480: Commercial Spanish. 0-3-3. Preq., Spanish 450 or consent of instructor. Study of common commercial forms for use in Spanish correspondence and business.

501: History of the Spanish Language. 0-3-3. Preq., Graduate Standing. 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., Graduate Standing. Study of Medieval Spanish prose and poetry with emphasis on the "Canter de Mio Cidii, "Libro de Buen Amor", Berceo, and Jaun Manuel's didactic prose.

503: Prose Fiction of the Golden Age. 0-3-3. Preq., Graduate Standing. Examination of the main novelistic currents, including sentimental, picaresque, pastoral, celestinesque, and didactic.

504: El Quijote. 0-3-3. Preq., Graduate Standing. Style, content, structure, and influence of "El Quijote". Literary antecedents, interpretations, and critical reception.

506: Drama in the Golden Age. 0-3-3. Preq., Graduate Standing. 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). Preq., Graduate Standing. 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., Graduate Standing. 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. 3 hours credit (6). Preq., Graduate standing. 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., Graduate Standing. 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., Graduate Standing. Examination and analysis of selected areas, works, and problems in Spanish American Literature. May be repeated once with a variation in 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.

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.

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 Education 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. 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.

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.

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.

375: Education Procedures and Materials in Special Education. 4-2-3. Preq., Special Education 300 and 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 Exceptional Preschool 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 Exceptional Preschool Children. 4-2-3. Preq., Special Education 300, 460, and Family and Child Studies 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 Exceptional Preschool Children. 4-2-3. Preq., Special Education 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., Special Education 460. Early identification and evaluation principles and procedures, parent interviews, norm-and criterion-referenced measure; diagnostic evaluation assessment incorporated into individualized educational planning. *

464: Parent Involvement and Community Resources for Education for the Exceptional Student. 0-3-3. Preq., Special Education 300 and 460. Parent-teacher duality roles and the dyadic process between student and teacher; material planning and implementation by parents through teacher modeling; community services. *

465: Interagency Services in Special Education. 4-2-3. Preq., Special Education 300 and 460. Study of related services to the handicapped, team control and contributions, strategies used in integrating overall life-experience planing and implementation. *

471: Prevocational Skills and Procedures for Exceptional Students. 4-2-3. Preq., Special Education 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., Special Education 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., Special Education 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 Special Education 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, measure for the handicapped, interpretation and application to individualized educational planning and report writing. W. *

500: Curriculum Design for Exceptional Students. 4-2-3. A 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.

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 teacher 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.

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

101: Stagecraft. 4-2-3. Practical experience in scenery construction, painting, stage lighting, and organizational techniques. F.

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.) 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. Principles of phonetics; articulatory phonetics; description and classification of sounds; transcription at different levels of detail; production and perception included. W.

225: Persuasion. 0-3-3. A study of motivational factors involved in persuasive speaking to secure belief and action.

240: Acting. 4-2-3 (9). Basic training in the art of acting with emphasis upon the physical and vocal skills required for character portrayal. W.

290: Theatre Appreciation. 0-3-3. A study of Theatre and its different forms and how they affect our life and society. F, W, Sp.

301: Anatomy and Physiology of the Speech and Hearing Mechanism. 0-3-3. Functional anatomy and physiology of those structures associated with speech production and reception.

302: Introduction to Speech and Hearing Science. 0-3-3. Comprehensive survey of the communicative process from the speaker to the listener, speech production, acoustics, and speech perception.

307: Play Production. 3-3-3 (9). The director's introduction to play production: staging, actor coaching, scenery, lighting, backstage organization, makeup and costuming. *

308: Dactylology. 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.) F, W, Sp.

400: Stage Makeup. 3-0-1. Practical experience in the design and application of stage makeup. F, Sp. *

402: Advanced Acting. 8-1-3 (9). Preq., Speech 240 or consent of instructor. A study in the practice of the major period styles of acting from ancient Greece to the present. Sp. *

403: Stage Lighting. 4-2-3 Preq., Speech 201 or consent of instructor. Practical and theoretical experience in stage lighting, design, and equipment, and their uses in both the commercial and non-commercial stage. W, Sp. *

404: Theatre Practicum. 4-0-1 (12). Practical experience in interpretation, acting, directing, or technical theatre. F, W, Sp.

405: Scene Painting. 3-0-1. Preq., Speech 401. Practical experience in the craft of scene painting, using both historical and modern techniques and solutions. F, W. *

407: Play Direction. 3-3-3 (9). Preq., Speech 307. In this advanced course, period styles, directing methodologies, and production in alternative spaces will be emphasized. *

408: Technical Direction and Stage Technology. 4-2-3. Preq., Speech 101. Practical experience in advanced theories of stage technology, shop management, budgeting, cost effective solutions and construction practices. W. *

409: Stage Management. 0-3-3. Preq., Speech 201. A study of the responsibilities, organization, and methods used in the operations of the stage manager in theatre. *

410: Studies in Scene and Costume Design. 0-3-3. Preq., Speech 201 or consent of instructor. A study of the theories of color, design, rendering, graphic techniques, and perspective as they pertain to scene and costume design for the stage. *

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. 6-0-2 (8). 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 articulations with emphasis on current research. W.

414: Sound for the Theatre. 4-2-3. Preq., Speech 201 or consent of the instructor. Practical and theoretical experience in sound reinforcement, design, and equipment, and their uses in both commercial and non-commercial stage.

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.

423: Dance for the Theatre. 3-1-1 (3). A course in the advanced movements of Ballet, Jazz, and Modern Dance that are used in musical Theatre. *

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.

427: Movement for the Stage. 3-1-1 (6). A performance class that introduces traditional techniques of movement styles for the stage and offers a survey of contemporary movement theory. *

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 condition 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.

450: Communication: Ethics and Values. 0-3-3. A study of how ethics and values affect the major aspects of the communication process. Included is a short historical perspective. Sp.

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. 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. *

490: Arts Management. 0-3-3. An overview of arts management in the fields of performing and visual arts. Included are basic management principles, personal management, and

organizational structures and procedures. *

491: Promotion. 2-3-3. Study of promotional theory that enables students to design, produce and evaluate promotional campaigns for fine arts institutions and events. 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 (6) Preq., Speech 401. A seminar course in the theory, and practice of scene design for the theatre. F, W, Sp.

503: Studies in Lighting Design. 0-3-3. Preq., Speech 403. A seminar course in the history, theory, and practice of lighting design for theatre, opera, dance, and other media.

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.

505: Measurement of Hearing. 0-3-3. Study of audiometric procedures including pure tone air and bone conduction testing. Clinical masking procedures, speech audiometry, and oto-acoustic immitance measurements.

506: Introduction to Clinical Procedures in Speech-Language Pathology. 0-3-3. Principles and procedures of clinical practice for children and adults with speech and language disorders.

507: Seminar in Dysphagia. 0-3-3. A study of etiology symptomatology, and anatomic/behavioral characteristics of dysphagia with an emphasis on principles and methods of diagnosis and treatment.

508: Practicum in Communicative Disorders. 1-3 hour(s) credit (8). Supervised clinical experience with individuals who have disorders of communication.

509: Instrumentation and Calibration. 0-3-3. A study of the procedures, instruments, and standards used for calibration of audiometric equipment. Measurement of noise levels and OSHA guidelines will be reviewed.

510: Speech Science. 0-3-3. Study of normal speech and voice production with emphasis on the respiratory, articulatory, phonatory mechanisms, and speech perception.

511: Studies in Stage Costuming. 0-3-3. Preq., Speech 406. A seminar course in the history, theory, and practice or 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.

514: Acoustics of Speech and Hearing. 0-3-3. Study of the production, transmission, and perception of acoustics in speech communication, acoustic phonetics, and psychoacoustics.

515: Theatre Management. 0-3-3. Study of theatre management concentrating on organization of business and administrative areas of theatre.

516: Hearing Disorders. 0-3-3. The effects of pathologies of the auditory system on basic and advanced audiometric tests are studied.

517: Hearing Science. 0-3-3. A study of basic acoustics, psychoacoustics and physiological acoustics.

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.

521: Anatomy and Physiology of the Hearing Mechanism. 0-3-3. Structure and function of bodily organs related to the processes of hearing.

522: Acoustic Phonetics. 0-3-3. Study of selected current issues and developments in acoustic phonetics with opportunity for individual research projects.

523: Aphasia and Related Disorders. 0-3-3. Preq., Permission of Instructor. A study of aphasia and related language disorders associated with brain damage in adults with an emphasis on symptomatology and assessment and diagnosis.

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: Advanced Diagnostic Procedures. 0-3-3. A study of formal and informal assessment procedures applicable to speech/language disorders. Emphasis on the role of differential diagnosis, specialized test procedures, referral procedures.

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.

529: Management of Aphasia and Related Disorders. 0-3-3. Preq., Speech 523 and permission of instructor. Clinical management of aphasia and related language disorders in adults.

530: Special Problems in Communicative Disorders. 0-3-3. Registration by permission of instructor. Individual research assignments in speech pathology and 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 behavioral tests used to differentiate hearing disorders.

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.

541: Physiological Tests of Auditory Function. 0-3-3. Auditory evoked potentials and electro-nystagmography examined in relation to purpose, scientific basis, procedures, and interpretation.

542: Seminar in Central Auditory Processing Disorders. 0-3-3. A study of central auditory processing disorders including an examination of various auditory tests for central processing, including strengths and weaknesses of the tests.

543: Seminar in Pediatric Audiology. 0-3-3. A study of the investigation, identification, and assessment of children with audiological problems.

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. 1 - 3 hour(s) credit (9). Supervised practicum in audiology including testing, aural habilitation/rehabilitation, report writing, and counseling clients with auditory problems.

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 students' 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.

555: Externship in Communicative Disorders. 8 semester hours. 40 contact hours per week. Preq., permission of the instructor. Supervised clinical practicum in an affiliated off campus clinical facility.

556: Seminar in Aural Rehabilitation. 0-3-3. Review of topical areas in aural rehabilitation for the infant through geriatric population.

558: Seminar in Amplification. 0-3-3. A study of recent advances in technology, rehabilitation strategies, and measurement as applied to amplification for the hearing impaired.

559: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in speech and hearing science, audiology, or speech-language pathology.

STATISTICS

200: Basic Statistics. 0-3-3. Preq., Three semester hours of mathematics numbered above 100. Sample statistics, frequencies, estimation, significance testing. F, W, Sp.

320: Introduction to Probability and Statistics. 0-3-3. Preq., Mathematics 231. Probability, random variables. discrete and continuous distributions, mathematical expectation, estimation, hypothesis testing, regression, analysis of variance.

402: Introduction to Statistical Analysis. 0-3-3. Preq., junior standing and consent of the instructor. Understanding and applying: descriptive statistics, p-values, estimation, significance, regression, correlation. Use of packaged computer programs. Sp. *

405: Statistical Methods. 0-3-3. Preq., Mathematics 231 or consent of instructor. Data description, discrete and continuous random variables, inferences about means and variances of populations, categorical data, regression, correlation, analysis of variance, computers in data analysis. *

406: Regression Analysis. 0-3-3. Preq., Statistics 405 or equivalent. Simple and multiple regression, inferences in regression, model formulation and diagnostics, analysis of covariance, nonlinear models, estimation and inference. Use of computers in data analysis. *

407: Analysis of Variance. 0-3-3. Preq., Statistics 405 or equivalent. Analysis of variance for standard and unbalanced experimental designs, multiple comparisons, fixed, random and mixed effects models. Use of computers for data analysis. *

411: Design of Experiments. 0-3-3. Preq., Statistics 406, 407 or equivalent. Factorial and fractional factorial experiments, complete and incomplete block designs, repeated measures, split-plot, response surface, cross-over designs, use of computers for data analysis. *

420: Applied Probability and Mathematical Statistics. 0-3-3. Preq., Mathematics 233, and a course in statistics; or consent of instructor. Probability, random variables, discrete and continuous distributions, joint and conditional distributions, distribution of functions of random variables, expectations, moment generating functions. *

425: Multivariate Statistics. 0-3-3. Preq., Statistics 406 and 407, Mathematics 308; or consent of instructor. Tests of hypotheses on means, multivariate analysis of variance, canonical correlation, principle components, factor analysis, computer applications. *

430: Nonlinear Models. 0-3-3. Preq., Statistics 406, 407, Math 233. Methods for estimation of parameters, test of hypotheses, confidence intervals and regions, measures of curvature, use of computer algorithms. *

448: Theory of Probability. 0-3-3. Preq., Statistics 420, Mathematics 233; or consent of instructor. Combinatorial analysis, conditional probability, distribution theory, random variables, random vectors, limit theorems, random walks. *

456: Time Series Analysis. 0-3-3. Preq., Mathematics 350, Statistics 420; or consent of instructor. Spectral analysis, least square filtering, stationary random processes, ARIMA models, forecasting, use of computers in data analysis. *

510: Advanced Statistics For Quality Improvements. 0-3-3. Preq., Statistics 406, 407, or consent of instructor. Least squares, fractional factorials, Tagushi's parameter design, performance criteria, second-order designs, fitting second-order models, exploration of response surfaces, optimization.

549: Theory of Statistics. 0-3-3. Preq., Statistics 420 or consent of instructor. Point estimation, interval estimation, statistical hypotheses, statistical tests, nonparametric inference, normal distribution theory.

558: Linear Statistical Models. 0-3-3. Preq., Mathematics 233, 308, Statistics 406, 407. Generalized inverses, quadratic forms, Gauss-Markov Theory, estimability, full rank models, non-full rank models and covariance.

570: Discrete Markov Processes. 0-3-3. Preq., Mathematics 233, 308, Statistics 420, or consent of instructor. Probability generating functions, Markov Chains, renewal processes, branching processes.

571: Stochastic Processes. 0-3-3. Preq., Statistics 420, Mathematics 350, or consent of instructor. Birth-death processes, point processes, random walks, diffusion processes.

580: Topics in Statistics. 0-3-3. May be repeated for 3 hours credit each time.

STUDY SKILLS

099: Developmental Orientation and 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.

UNIVERSITY SEMINAR

100: Orientation and Study Skills. 1-2 hour(s) credit. Identification and application of practical study techniques and attitudes associated with college success; identification of goals, time management and scheduling.

Councils, Committees, Commissions

The President and the appropriate Vice President are 'ex-officio' members of all councils and committees.

ADMINISTRATIVE AND PLANNING COUNCIL - Purpose: Serves as the comprehensive review, assessment, and planning Council for Louisiana Tech University. The Council is chaired by the President, and the membership includes administrators representing all areas of the University. Members: Daniel Reneau (Chair), Jerry Andrews, Barry Benedict, George Byrnside, John Emery, Pamela Ford, Jeanne Gilley, Jean Hall, Wiley Hilburn, Jim Oakes, Ken Rea, John Trisler, Phillip Washington, Chair of the University Senate, and Student Government Association President.

Administrative Review Board - Purpose: Hears only appeals from recommendations of the Behavioral Standards Committee, and is vested with appellate jurisdiction only. Members: Vice President for Student and Alumni Affairs (Chair), Vice President for Academic Affairs, Dean of the College in which the student is registered.

Applied Computational Analysis and Modeling Steering Committee - Purpose: Handles the academic structure and administrative details in the ACAM program. The Committee coordinates communication with the Graduate Council concerning the curriculum, entrance requirements and standards. The Committee recommends to the Graduate Dean a Doctoral Committee for each student, after consultation with the relevant departments. Members: Richard Greechie (Chair), Richard Gibbs, Barry Kurtz, James Nelson, James Spaulding.

Assessment Oversight Committee - Purpose: Coordinates and assists individual unit in the university-wide assessment of effectiveness of academic programs and student services. Members: Phillip Washington (Chair), Sam Dauzat, Maribel McKinney, Dennis Minor, James Nelson, Shirley Reagan, Joe Thomas, Elizabeth Wibker.

Astronomy Advisory Committee - Purpose: Oversees astronomical observing activities and serves in an advisory role to the planetarium at Louisiana Tech University. The Committee arranges star parties and observation of interesting astronomical events such as eclipses and comets, and is available to serve as a source of information. Also aids in improving the equipment at the planetarium. Members: Norman Witriol (Chair), William Deese, Tom Emory, Craig Friedrich, Richard Gibbs, Natalia Zotov.

Athletics Council - Purpose: Reviews intercollegiate athletic programs and activities and makes recommendations to the President for his consideration. Athletics Council members are appointed by the President. Members: Jerry Andrews (Chair), Robert Berguson, James Hester, Wiley Hilburn, Ken Rea, Mary Belle Tuten, Milton Williams, Student Representative, Athletic Director (non-voting).

Behavioral Standards Committee - Purpose: Serves as the disciplinary agent of the University in cases referred to it by the Associate Vice President for Student Affairs or his representative. The Committee has appellate jurisdiction by a student from an adverse decision of the Associate Vice President for Student Affairs which directly affects the complainant in his individual capacity. Members: The Committee members shall be selected from a roster composed from the following: twelve faculty members appointed by the Vice-President for Academic Affairs; twelve staff members appointed by the Vice President for Student and Alumni Affairs, six SGA upperclassmen and six underclassmen appointed by the President of the University, and four chairpersons appointed by the Vice President for Student and Alumni Affairs. Four rotating committees, composed of faculty, staff, students and a chairperson, meet to hear discipline cases involving students.

Campus Computing Services Coordinating Committee - Purpose: Assess the campus needs for computing services and assign priorities to those needs. Members: Mel Corley (Chair), Tina Allen, Brian Camp, Chris Childress, Tom Emory, Peter Gallagher, Richard Gibbs, Chris Henderson, David Hooper, Kathleen Johnston, Jim King, Blanche O'Bannon, Jack Potter, Bala Ramachandran, Gerald Reeves, William Spears, Sam Wallace, Walter Wicker.

Commencement Committee - Purpose: Reviews activities associated with the graduation ceremony and make appropriate recommendations to the President. Members: Phillip Washington (Chair), Eddie Blick, Bill Cox, William Deese, Margaret Dunn, Houston Huckabay, Albert Lazarus, Michael Murphy, Terri Odenbaugh, Jim Robken, Tom Springer, Verdell Ventroy.

Council of Academic Deans - Purpose: Coordinates academic programs and policies for the University. The Council considers actions taken by the Instructional Policies Committee and the Graduate Council. Recommendations of the Council of Academic Deans are forwarded to the President for consideration and final approval. Members: Vice President for Academic Affairs (Chair), Deans of each academic college, Dean of the Graduate School, and the Dean of Enrollment Management.

Equipment Donations Committee - Purpose: Reviews all proposed equipment donations to any part of the University (including the Foundation). Members: Roy Dowling (Chair), Barry Benedict, Jim King, John Trisler.

Faculty and Staff Handbook Committee - Purpose: Charged with the timely review of and suggested revisions prior to the annual printing of the Faculty and Staff Handbook. Recommendations are forwarded for review and approval to appropriate administrators and councils. Committee membership consists of a faculty member from each academic college and administrative representatives from

the Offices of Academic Affairs and Personnel. Members: Randall Barron (Chair), Margaret Alexander, Bill Campbell, Philip Castille, Don Dyson, Joe Pullis, Barlow Soper, Nancy Tolman.

Fee Committee - Purpose: Serves to review proposals regarding university fees and to make recommendations regarding fees to the President and the University of Louisiana System, as appropriate. Members: Vice President for Academic Affairs; Vice President for Administrative Affairs; Vice President for Student and Alumni Affairs; Associate Vice President for Student Affairs; Vice Chairperson, University Senate; Business Manager, SGA President.

Graduate Council - Purpose: Reviews and recommends proposals for graduate courses and curricula, and may initiate or consider recommendations concerning instructional policies of the Graduate School. Members: Kenneth W. Rea (Chair), David Beebe, John Brewer, John Calhoun, Dianne Douglas, Charles Foxworth, Otis Gilley, Fran Holman, Anthony Inman, Edward Jacobs, James Liberatos, Raja Nassar, Janet Pope, Freddy Roberts, Nancy Tolman, Phillip Washington, Allen Williams, SGA Graduate Student Representative.

Grievance Committee - Purpose: Provides for an independent body to consider the grievances of faculty and other unclassified personnel. This committee is composed of nine selected/elected members and a chairperson appointed by the President. The Executive Committee of the University Senate shall select six members (one from each college) to serve on the University Grievance Committee. Each division (including Student and Alumni Affairs, Academic Affairs and Administrative Affairs) shall elect one member each to serve on the University Grievance Committee. Only non-classified staff personnel may be elected to represent the divisions. Members: Joe Pullis (Chair), Dickie Crawford, Lyndon Dawson, William Jordan, Larry Sellers, William Spears, Carole Tabor, Jerome Tobacyk, Mary Belle Tuten, Sam Wallace.

Health Science Advisory Committee - Purpose: Addresses collective issues relating to health care education and serves in an advisory capacity to the Vice President for Academic Affairs. Members: Heads of the Departments of Agricultural Sciences, Technology and Education (pre-veterinary medicine); Biological Sciences (pre-medicine and dentistry); Biomedical Engineering (biomedical engineering); Clinical Laboratory Science and Bacteriology (medical technology, microbiology, and other pre-professional programs); Chemistry (pre-optometry and pre-pharmacy); Health and Physical Education (fitness and wellness management); Health Information Management (medical records); and the Directors of the Division of Nursing (nursing) and the program in dietetics (dietetics).

Honors Program Council - Purpose: Develops and governs the Honors Program in conjunction with the Director of the Honors Program. Members: John Price (Chair), Jan Albritton, Tim Ameel, Jan Bowman, Edward Jacobs, Al Lazarus, Tom Means, Tom Springer, Stephen Webre.

Human Use Committee - Purpose: Ensures that the University follows the regulations for the protection of human research subjects as set forth by the Department of Health and Human Services. All research projects involving human subjects, both sponsored and non-sponsored projects, must be reviewed and approved by the Institutional Review Board for Use of Human Research Subjects before the research project is initiated as well as periodically during the conduct of the research project. Members: James Green, M.D. (Chair), Tommy Grafton, Linda Graham, Paul Hale, Ellen Hinton, Archer Huneycutt, Mary Livingston, John Maxfield, Florence Potter, Elizabeth Wibker.

Institutional Animal Care and Use Committee - Purpose: Oversees the welfare of any animals used in experimental research, their care and facilities, as directed by the U. S. Department of Agriculture and the National Institutes of Health. Members: John Maxfield (Chair), Kyle Birch, William Green, Paul Hale, James Liberatos, Stan Napper, Tom Springer, Nancy Tolman.

Instructional Innovation Committee - Purpose: Established in 1995 with the responsibility to enhance communications among faculty about campus instructional technology capabilities and about experimentation with instructional techniques and to schedule development programs to meet identified needs of the faculty. Members: Shirley Reagan (Chair), Bill Deese, Fran Holman, Sue Huth, Dick Lewis, Tom Means, Dennis Minor, Rebecca Stenzel.

Instructional Policies Committee - Purpose: Considers problems of college life in the areas of courses, curricula, and instruction in undergraduate studies. Also, serves as an instrument of control to avoid course duplication and proliferation. Members: Chairperson elected each November, John Brewer, Frank Busch, Jo Ann Dauzat, Fred Hamilton, Donald Kaczvinsky, Al Lazarus, James Lowther, E.J. Miller, Ray Newbold, Micheal O'Neal, Shirley Reagan, Linda Sivils, Robert Toburen, Phillip Washington, Michael White, and one student representative of the Student Government Association.

Insurance and Related Benefits Committee - Purpose: Periodically reviews and makes recommendations to the President regarding new benefit programs and changes to existing plans in order to keep the University's fringe benefit program competitive. This Committee is designated as the plan administrator for the University's Cafeteria (Section 125) Plan. Members: Don Dyson (Chair), Dwight Anderson, George Byrnside, Jean Hall, Ken Rea.

Library Advisory Committee - Purpose: Studies library needs in view of the academic program and advises the Director of Libraries on matters of general library policy, the development of library resources, and upon means which may integrate the library program with other academic activities of the Universarity. The Committee serves as a liaison group between the faculty and the Library. Members: Nancy Darland, William Friedman, Dixie Griffin, Donna Guice, Janie Humphries, Edward Jacobs, Robert Jungman, Rebecca Long, Joy Lowe, Michael McCullough, Paul Ramsey, Rebecca Stenzel, Walter

Wicker, Gary Zumwalt, one undergraduate and one graduate student.

Museum Committee - Purpose: Establishes policies and guidelines for the operation of the Museum. Aids the Director and Associate Director in obtaining artifacts for the Museum. Members: Wade Meade (Chair), James Christian, Jonathan Donehoo, Sallie Rose Hollis, Joan Marie Edinger, Linda Reneau, Gary Zumwalt.

Oversite Committee - Purpose: Identifies prospective grant opportunities, provides assistance in the development of joint proposals, provides final approval on all matters affecting jointly developed projects and to report to college administrators progress on all on-going joint projects between two or more colleges. Members: Carolyn Talton (Chair), Nancy Alexander, Jenna Carpenter, Jo Ann Dauzat, William Deese, Richard Gibbs, Ellen Hinton, Janie Humphries, Barry Kurtz, Linda Ramsey.

Parking and Traffic Committee - Purpose: Responsible for the establishment and annual review of the parking and traffic regulations as set forth in the University "Vehicle Regulations Manual." This committee is also charged with reviewing appeals, proposals, and recommendations submitted by members of the University community pertaining to parking and traffic concerns. Members: Associate Vice President for Student Affairs (Chair), Chief of University Police, representative from the Physical Plant, one representative from each of the six academic colleges, three members of the Student Government Association appointed by the SGA President, University Senate representative.

Premedical/Predental Advisory Committee - Purpose: Advises Premedical and Predental students, conducts personal interviews of applicants to medical and dental school and prepares recommendations for these applicants. Members: Larry Sellers (Chair), Ed Griswold, Albert Lazarus, James Liberatos, Richard McCall, Stanley Napper, Dale Snow, James Spaulding.

Radiation Committee - Purpose: Supervises the use of all radiation sources on Louisiana Tech property with the aim of providing maximum protection to all personnel directly or indirectly involved. Members: Ronald Thompson (Chair), Craig Friedrich, Richard Gibbs, Kenneth Griswold, Nancy Tolman, student representative.

Research Council - Purpose: Coordinates the research activities of the University, strengthens interdisciplinary and inter-institutional research, serves as a vehicle for discussion of problems involving the administration of research projects and grants, recommends to the University administration policies concerning research and other sponsored programs, and fosters, stimulates, and advances the research effort of the University. Members: Jerry Andrews, Jerry Drewett, Robert Grafton, Ellen Hinton, Edward Jacobs, James Liberatos, James Robert Michael, Freddy Roberts, William Spears, Joe Thomas, Nancy Tolman, Walter Wicker, SGA representative.

Space Utilization Committee - Purpose: Ensures that all campus space is usable by all members of the campus community who can justify its use in total consideration of the nature of the space. Members: Vice President for Academic Affairs, Vice President for Administrative Affairs, Vice President for Student and Alumni Affairs.

Student Organizations Committee - Purpose: Serves as the governing committee for all matters involving student organizations. Members: Faculty/Staff member appointed by the Vice President for Student Affairs, Faculty Senate Representative, Interfraternity Council President, Panhellenic President, Student Government Association President, University Staff Member appointed by the Vice President for Student Affairs, Chief of University Police, IFC Advisor, Panhellenic Advisor, Director of Multicultural Affairs, Union Board President.

University Health Council - Purpose: Coordinates efforts of university personnel in affecting student and staff decision making in the areas of health concerns. Specifically, the Council implements strategies for integration of health services information; assesses and recommends, where appropriate educational programming; and attempts to identify information generated by faculty and staff on health issues. Members: Linda Griffin (Chair), Rose Daigle, Jo Ann Dauzat, Chris Walsh, Lou Murphy, Stan Napper, Bobbie Nolan, Janet Pope, Roger Shelor, Jim Oakes, Mary Carol Vidrine, two student representatives, and Ex-officio members: Jean Hall, Maribel McKinney, and Dan Reneau.

University Safety Committee - Purpose: Reviews and recommends the adoption of University safety standards. The Committee works through safety representatives to inform departments of new procedures and to assist in the implementation of safety regulations. Members: Environmental Safety Officer (Chair), Director of Nuclear Center, Director of Physical Plant, Director of Personnel, Department Head of Department of Chemistry, Department Head of Department of Biological Sciences or Associate Dean, College of Life Sciences, Director of University Housing, Chief of University Police, Head of Division of Nursing.

University Senate - Purpose: Promotes the general welfare of the University; discusses and expresses views on matters of general concern to the faculty; effectively communicates between the faculty and the administration; initiates policy proposals; makes recommendations on policy proposals submitted to it by the administrative officials of the University; and requests, through appropriate channels, from the administrative officials of the University, information which might influence policies and recommendations of the Senate. Members: 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.

University Sexual Harassment Committee - Purpose: Hears and considers testimony and other relevant evidence to make findings of fact, to determine whether the University's policy on sexual harassment has been violated, and if so to recommend appropriate relief and disciplinary

action(s). Members: O. J. Hall and Carolyn Talton (Co-chairpersons), Dwight Anderson, Dawn Carr, Patrick Crowder, John Garner, Thelma Jenkins, Al Lazarus, Shirley Reagan, Carole Tabor, and Lizzie White.

University Tenured Faculty Committee - Purpose: Provides due process according to the handbook in cases involving action taken by the University which could result in the discharge, termination of contract, or demotion in rank of a tenured faculty member. Members: Peter Jones (Chair), Phillip Cook, Susan Corley, Albert Lazarus, Jim Lowther, Linda Sivils, Jerome Tobacyk, Liz White, AAUP Tech Chapter President, University Senate Chair.

University Tour Committee - Purpose: Ensures that any tour recommended by the University falls within the mission of the University, that is, teaching, research and public service. Members: John Trisler (Chair), George Byrnside, Jerry Drewett, Steve Rodakis, Ronnie Wiggins, and Student Government Association President.

University Faculty

F. Jay Taylor, President Emeritus
Louisiana Tech University

E. S. Foster, Vice-President Emeritus
Student Affairs

Virgil Orr, Vice-President Emeritus
Academic Affairs

Hal B. Barker, Dean Emeritus
College of Life Sciences

Elenora A. Cawthon, Dean Emeritus
Student Affairs

B. J. Collinsworth, Dean & Professor Emeritus
College of Education

Jeanne M. Gilley, Dean Emeritus
College of Human Ecology

John E. Maxfield, Dean & Professor Emeritus
Graduate School

Agnes C. Miller, Dean & Professor Emeritus
College of Human Ecology

Paul J. Pennington, Dean Emeritus
College of Arts and Sciences

Burton R. Risinger, Dean Emeritus
College of Administration and Business

Jack Thigpen, Dean Emeritus
College of Engineering

Billy J. Attebery, Professor Emeritus
College of Arts and Sciences

Robert Mack Caruthers, Professor & Head Emeritus
College of Engineering

Woodrow Chew, Professor Emeritus
College of Engineering

Billy J. Davis, Professor Emeritus
College of Life Sciences

Leo A. Herrmann, Professor Emeritus
College of Engineering

Houston K. Huckabay, Professor & Head Emeritus
College of Engineering

Milton R. Johnson, Jr., Professor Emeritus
College of Engineering

James Malone, Professor Emeritus
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Margaret W. Maxfield, Professor Emeritus
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Robert W. McLeane, Professor Emeritus
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Patterson B. Moseley, Professor Emeritus
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Jack T. Painter, Professor Emeritus
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Morgan D. Peoples, Professor Emeritus
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Harold J. Smolinski, Director Emeritus
College of Administration and Business

Robert C. Snyder, Professor Emeritus
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Lorimer E. Storey, Professor Emeritus
College of Arts and Sciences

William Y. Thompson, Professor Emeritus
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Akl, Fred A.; Professor, Civil Engineering - BS, Cairo Univ.; Dipl. (Hydraulic Structures), International Courses, Delft, The Netherlands; MS, PhD, Univ of Calgary, P.E. (1990) Graduate Faculty

Allen, Phoebe; Professor, Art - BA, MA, LA Poly. Inst. (1965)

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Anderson, Dwight C.; Professor, Finance and Head, Department of Economics and Finance - BS, MBA, LA Tech Univ.; PhD, Univ of Alabama. (1979) Graduate Faculty

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Attrep, Abraham M.; Professor, History - BA, LA College; MA, Tulane Univ; PhD, Univ of Georgia. (1962) Graduate Faculty

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Baldwin, Juliet H.; Instructor, A. E. Phillips - BA, Alcorn State; MA, Jackson State (1986)

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Barron, Randall F.; Professor, Mechanical Engineering - BS, LA Poly. Inst.; MS, PhD, Ohio State Univ. (1965) Graduate Faculty

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Berguson, Robert Jenkins; Professor, Art - BA, MA, MFA, Univ. of Iowa; AA, Corning Community College.(1970) Graduate Faculty

Berry, Frederick C.; Adjunct Associate Professor, Electrical Engineering - BS, MS, DE, Louisiana Tech Univ. (1987) Graduate Faculty

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Bissell, Paul; Instructor, Music - BA, Univ. of Southern Florida; MM, Univ. of Texas (1992)

Black, Pamela W.; Assistant Professor, Nursing - BSN, Univ. of Mississippi Medical Center; MSN, Northwestern State Univ. (1992)

Blanchard, Richard J., Jr.; Clinical Professor, Clinical Laboratory Science and Bacteriology - BA, Louisiana Tech University; MD, Louisiana State University (1993)

Blick, Thomas Edward, Jr.; Assistant Professor, Journalism - BA, Univ. of Richmond; MA, Penn State Univ; PhD, Univ. of Tennessee (1990)

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Brotherston, Joseph H.; Assistant Professor, Professional Aviation - BS, Michigan State Univ.; MBA, Auburn Univ. (1992)

Brown, Reginald Eugene; Professor, Marketing and Head, Department of Management and Marketing - BS, Florida Institute of Technology; MBA, PhD, Univ. of Alabama (1990) Graduate Faculty

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Buentello, Nora L.; Instructor, Speech - BA, MA, Univ. of Texas (1992)

Burley, Kim A.; Assistant Professor, Psychology - BA, MA, California State Univ.; PhD, The Claremont Graduate School (1989) Graduate Faculty

Busch, Frank M.; Associate Professor, Management and Assistant Dean for Undergraduate Affairs - BBA, North Texas State Univ.; MBA, PhD, Indiana Univ. (1966)

Bush, John M.; Associate Professor, History - BSE, Arkansas State Teachers College; MA, PhD, Mississippi State Univ. (1965) Graduafe Faculty

Butler, George M.; Professor, Mathematics and Statistics - BS, MS, PhD, Oklahoma State Univ. (1967) Graduate Faculty

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Callens, Earl Eugene, Jr.; Associate Professor, Mechanical Engineering - BS, MS, Georgia Institute of Technology; PhD, Univ. of Tennessee Space Institute (1983) Graduate Faculty

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Douglas, Dianne; Professor, Foreign Languages - BA, Monmouth College; MA, PhD, Univ. of Oklahoma (1979) Graduate Faculty

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Dugas, Steve; Assistant Professor, Professional Aviation - BS, Louisiana Tech Univ.; MA, Grambling State Univ. (1987)

Dyer, James M.; Professor, School of Forestry - BS, MS, Oklahoma State Univ.; PhD, Louisiana State Univ. (1977) Graduate Faculty

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Ferrington, Dottie L.; Instructor, A. E. Phillips - BA, Northwestern; MA, Univ. of Southern Mississippi (1981)

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Friedman, William H.; Assistant Professor, Management Information Systems - BA, Univ of Pennsylvania; MA, PhD, Univ. of Virginia (1990)

Friedrich, Craig R.; Associate Professor, Mechanical Engineering - BS, MS, Louisiana Tech Univ.; PhD, Oklahoma State Univ. (1987) Graduate Faculty

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Fullerton, Roy J., Jr.; Captain; USAF, Assistant Professor, Air Force Aerospace Studies - MS, Troy State Univ. (1994)

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Gallagher, Peter W.; Professor and Head, Agricultural Sciences, Technology and Education - BS, MS, Univ of. Wisconsin; PhD, Ohio State Univ. (1978) Graduate Faculty

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Garrett, Patrick P.; Distinguish Professor, English - BA, Louisiana Tech Univ.; MA, Auburn Univ.; EdD, North Texas State (1982) Graduate Faculty

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Gibbs, Richard Lynn; Professor and Head, Physics - BA, Univ. of the South; MS, PhD, Clarkson College of Technology (1966) Graduate Faculty

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Gilbert, Scott; Instructor, Speech/Theatre - BA, Oregon State Univ., MA, Louisiana Tech Univ. (1994)

Gilley, Otis W.; Professor, Economics - BS, Univ. of Texas-Arlington; MS, PhD, Purdue Univ. (1988) Graduate Faculty

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Grafton, Tommy D.; Associate Professor, Health & Physical Education - BS, Northwestern State Univ.; MS, Northeast State Univ.; EdD, Univ. of Southern Mississippi (1977) Graduate Faculty

Greechie, Richard J.; Professor, Director of the School of Science; Head, Department of Mathematics and Statistics - BA, Boston College; PhD, Univ. of Florida (1990) Graduate Faculty

Green, James D.; Associate Professor, Biomedical Engineering - BS, Louisiana Polytechnic Institute; MD, Tulane Univ. (1974) Graduate Faculty

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Griffin, Dixie Morris; Professor, Civil Engineering - BS, MS, PhD, Virginia Polytechnic Institute, P.E. (1984) Graduate Faculty

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Hale, Paul Nolen, Jr.; Professor, Head, Biomedical Engineering and Director, Center for Rehabilitation Science and Biomedical Engineering - BS, Lamar Tech; MS, Univ. of Arkansas; PhD, Texas A&M Univ. (1966) Graduate Faculty

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Hayes, Timothy; Assistant Professor, Architecture - BA, B ARCH, M ARCH, Louisiana Tech University (1984)

Heard, John M.; Associate Professor, Music - BM, Eastman School of Music; MM, Univ. of Michigan; DMA, Univ. of Texas (1977)

Hegab, Beth C.; Instructor, Industrial Engineering - BS, MS, Georgia Institute of Technology (1995)

Hegab, Hisham E.; Assistant Professor, Mechanical Engineering - BS, Louisiana Tech Univ.; MS, PhD, Georgia Institute of Technology (1995) Graduate Faculty

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Hilburn, Wiley W. Jr.; Professor and Head, Journalism - BA, Louisiana Polytechnic Institute; MS, Louisiana State Univ. (1968)

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Hillard, Jeff B.; Assistant Professor, Agronomy - BS, MS, Univ. of Idaho; PhD, Texas A&M (1990) Graduate Faculty

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Holder, Sue Humphrys; Professor, Music - BME, Florida State Univ.; MEd, Univ. of Florida; DMA, Univ. of Colorado (1967)

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Hughes, Ralph M.; Assistant Professor, Barksdale - BS, Louisiana State Univ.; MS, Texas A&M Univ. (1991)

Humphries, Elfreda C.; Assistant Professor, A. E. Phillips - BS, Allen Univ.; MA, Indiana Univ. (1974)

Humphries, Janie H.; Associate Professor, Family and Child Studies - BS, Texas Women's Univ.; M.Ed., Sam Houston State Univ.; Ed.D., East Texas State Univ. (1987) Graduate Faculty

Hunt, Alice E.; Assistant Professor, Nutrition and Dietetics - BS, Humbolt State Univ.; MS, Fresno State Univ.; MS, Louisiana Tech Univ.; PhD, Colorado State Univ. (1990) Graduate Faculty

Hunt, Howard E.; Assistant Professor, Biological Sciences - BS, MS, Humbolt State Univ.; PhD, Texas A&M (1989) Graduate Faculty

Hurtig, Dolliann M.; Assistant Professor, Foreign Languages -BA, Newcomb College; MA, Univ. of Southwestern Louisiana; PhD, Tulane Univ. (1986) Graduate Faculty

Huston, Charles Richard; Professor, Marketing - BA, Wabash; MBA, DBA, Indiana Univ. (1979) Graduate Faculty

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Huth, Suzanne C.; Assistant Professor, Clinical Laboratory Science and Bacteriology - BS, MEd, Northeast Louisiana Univ. (1985)

Hyde, Norlyn; Assistant Professor, Nursing - BSN, Northeast Louisiana Univ.; MSN, Northwestern State Univ. (1994)

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Jacobs, Karen L.; Instructor, English - BA, Augustana College; MA, PhD, Auburn Univ. (1994) Graduate Faculty

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Jewell, Dorothy K.; Instructor, Prescott Library - BS, Michigan State; MS, Louisiana State Univ. (1989)

Jewell, Frederick Forbes; Professor, School of Forestry - BS, MS, Michigan State Univ.; PhD, West Virginia Univ.; (1966) Graduate Faculty

Jimenez, Luis Fernando; Assistant Professor, Music - BM, Baylor Univ.; MM, Duquesne Univ. (1991)

Johnson, Donald E.; Assistant Professor, Professional Aviation-BS, Univ. of Nebraska; MA, Central Michigan Univ. (1991)

Johnson, Frances E. H.; Professor, Curriculum, Instruction, and Leadership - BA, MA, Louisiana Tech Univ.; EDD, Northeast Louisiana Univ. (1971) Graduate Faculty

Johnson, Gene H.; Assistant Professor, Accounting - BBA Midwestern Univ.; MS, PhD, Texas Tech Univ. (1990) Graduate Faculty

Johnson, Jerald E; Assistant Professor, A. E. Phillips - BS, NW Missouri State Univ.; MS, Washburn Univ.; EDD, McNeese State Univ. (1974)

Johnson, Judith L.; Assistant Professor, Behavioral Sciences - BS, James Madison Univ.; PhD, Loyola Univ. of Chicago (1995)

Johnson, Ruth B.; Instructor, A. E. Phillips - BFA, Mississippi State Univ. for Women; MA, Louisiana Tech Univ. (1984)

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Tommy Sisemore . . . . . Director of Athletic Facilities
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Melissa Wingate . . . . . Assistant Athletic Director for Marketing and Game Management
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Mike Borich . . . . . Assistant Football Coach
Clint Conque . . . . . Assistant Football Coach
Gary D. "Pete" Fredenburg . . . . . Assistant Football Coach
Conroy Hines . . . . . Assistant Football Coach
Ed Jackson . . . . . Assistant Football Coach
Tim Keane . . . . . Assistant Football Coach
Petey J. Perot . . . . . Assistant Football Coach
Leon Barmore . . . . . Women's Head Basketball Coach
Randy Meyer . . . . . Women's Assistant Basketball Coach
Kim Mulkey Robertson . . . . . Women's Assistant Basketball Coach
Pam Stackhouse . . . . . Women's Basketball Restricted Earnings Coach
Bill Galloway . . . . . Women's Softball Coach
Jim Wooldridge . . . . . Men's Head Basketball Coach
Bo Overton . . . . . Men's Assistant Basketball Coach
Keith Richard . . . . . Men's Assistant Basketball Coach
Leroy Combs . . . . . Men's Basketball Restricted Earnings Coach
Randy Davis . . . . . Head Baseball Coach
Michael Martin . . . . . Assistant Baseball Coach
Billy Jack Talton . . . . . Powerlifting Coach
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